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ARTICLES FROM THE NATIONAL SURVEY OF SECONDARY EDUCATION

The *School Review* has endeavored to keep its readers in touch with the progress of the National Survey of Secondary Education. During the early stages of the work this journal carried reports on the organization and the scope of the survey. As the work progressed and evidence came in and was being digested, partial reports were made in this section on certain of the projects. Now that the projects have been completed and the monographs based on them are going through the press, it is possible to report on some of the projects in more extended form—through the medium of articles instead of brief notes.

The first of these articles, "Plans Characterized by the Unit Assignment" by Roy O. Billett, director of the project dealing with provisions for individual differences in secondary schools, appears in this issue. The complete report on this project will extend through 250 or more printed pages. Because justice cannot be done to the whole report of this project within the scope of a single article, even a long one, the present summary is limited to one of the major aspects of the study, namely, procedures in teaching characterized

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by the unit assignment. Although one cannot say that this aspect is the most important part of what is one of the survey's major projects, it is undoubtedly an important study, the findings of which should contribute to the clarification of discussion and to the improvement of practice where these procedures are concerned.

Succeeding issues of the *School Review* will publish reports from additional projects. It is possible to announce at this writing that early issues will carry an article from the project dealing with intramural and interscholastic athletics, entitled "Looking Ahead in Secondary-School Athletics," one on "Plans for Curriculum-making in Secondary Schools," and still another from the project dealing with research relating to secondary education carried on within individual schools and school systems. The members of the staff of the survey responsible for these three projects are, respectively, P. Roy Brammell, Edwin S. Lide, and William H. Zeigel, Jr.

THE ORGANIZATION OF DISTRICTS AND SCHOOLS IN CALIFORNIA

Secondary Education in California, a report of a preliminary survey of secondary education in California made in 1928, included the recommendation "that a detailed investigation of all counties and districts . . . be made with a view to supplying the basis of a program of reorganization for both districts and schools." The recommendation was made because the need in the state for a larger unit of local administration for elementary education and not infrequently also for high-school education was apparent. It was equally apparent that any large progress toward junior high school reorganization in most districts must wait upon the integration vertically of elementary-school and high-school districts, which in California are dominantly autonomous with respect to each other, as is the case also in Illinois.

The commission subsequently created by authority of the legislature (in pursuance of this and other recommendations of the preliminary inquiry) to study further the educational problems of the state did not carry out the recommendation. As a matter of fact, this commission can be said to have devoted its energies to deliberation rather than to investigation, and the problem of district and

school organization was left by the commission largely in the unsolved state in which the preliminary survey had relinquished it. This result was contrary to the wishes of many educational leaders in the state, and it was only natural that the need of penetrating the issues investigatively would emerge recurrently, both in the state as a whole and in local communities and districts. Among local communities where the question has been considered, it was first brought to a head in Mendocino County in the northwestern part of the state. A detailed study of districts and schools in the county was authorized by the county superintendent and his staff and sponsored by the education committee of the Mendocino County Farm Bureau. The investigation was directed by Professor William M. Proctor, of Stanford University, who had associated with him in the work Elmer H. Staffelbach, director of research for the California Teachers Association, and S. S. Mayo, of the Sequoia Union High School, Redwood City.

The outcome of the investigation is the proposal for Mendocino County of four "superintendency areas," which will operate, if the proposal is carried out, as four large school districts including the entire county. Some understanding of the reorganization that would be effected if the proposal should be put into operation may be had from the summary of educational advantages presented in the report, entitled *An Educational Survey of Mendocino County, California*.

1. Each area would be under one board of education for all purposes.
2. Each area would have one superintendent of schools to supervise and administer both elementary and secondary schools.
3. A majority of the existing one-room, one-teacher schools would be discontinued. There are now sixty-five such schools. Under reorganization there would only be twenty-eight.
4. In most of the one-room schools remaining there would only be six grades instead of eight as at present. The one teacher could handle the remaining grades more efficiently.
5. The proportion of two, three, four, and more teacher schools would be greatly increased. At present only 21.5 per cent of the elementary schools have more than one teacher. Under reorganization 44 per cent of the schools would have two or more teachers. An average of fewer grades to handle would greatly improve quality of teaching.
6. There would be a higher average of pupils per teacher in the remaining

fifty elementary schools of the county as compared with the situation in the eighty-four schools now in existence. At present the median number of pupils per teacher is thirteen. Under reorganization it would be between sixteen to twenty. In only two schools would the average be above thirty pupils per teacher. The cost per unit of instruction, which is now high, would be greatly lowered without lowering teaching standards.

7. A great many more pupils in the county would be given an opportunity for training in improved secondary schools. Whereas now there is only one junior high school in the county . . . under reorganization there would be: one three-year junior high school (Grades VII, VIII, and IX) . . . ; three four-year junior high schools (Grades VII, VIII, IX, and X) . . . ; three six-year high schools (Grades VII, VIII, IX, X, XI, and XII) . . . ; one four-year high school (Grades IX, X, XI, and XII) . . . and one senior or three-year high school (Grades X, XI, and XII) . . . This group of new-type secondary schools would provide for the children of Mendocino County all of the advantages now enjoyed by children in the city districts of the state. As shown in final statistical summary the cost for this improved educational program would be less than for the present program in the county.

8. The curriculums or courses of study would be unified, there would be better articulation between the elementary and secondary programs of study, and the general quality of instruction would be improved by the transfer of the seventh and eighth grades from elementary- to secondary-school units.

9. Reduction in the number of school buildings and the improvement or reconstruction of others would greatly improve plant and equipment and promote more efficient teaching by the better qualified teachers who would be retained under reorganization plans.

10. Supervision would be more directly related to the educational needs of each of the areas because all of the schools of the area would be under one supervisory head who would formulate the policies for improvement and submit them to a board familiar with conditions and interested in the educational welfare of all children in the area, both elementary and secondary. At present the high schools have the major portion of attention and the highest paid supervision. Under reorganization the entire program would be managed by a superintendent and a board interested in all the children of all the grades from kindergarten through high school. The program would be better balanced and the educational outcomes would be greatly improved.

The report makes clear that changes in the school laws of California would be needed to permit the reorganization proposed. Among these would be general-tax reforms, provision of special aid for buildings and transportation, creation of a state equalization fund, and a constitutional amendment respecting the use of state and county apportionments by districts.

Evidence of a more general consciousness of the need of investigation basic to reorganization that will overcome the weaknesses of present organization in the state is afforded in the willingness of the California Teachers Association to co-operate with the National Survey of Secondary Education in a more extended investigation along similar lines involving six other counties. The association and the survey shared the costs of the work in these counties. This project also was directed by Professor Proctor, again with the co-operation of Professor Staffelbach, of the California Teachers Association, and with the assistance of Mr. Mayo. The general features of the proposals for the additional counties are similar to those for Mendocino County, although, to be sure, the particular superintendency areas and schools recommended conform to the specific needs of the counties concerned. In the report of the National Survey of Secondary Education the superintendency area is proposed as *one* practicable solution of the problem in California, not as the sole solution exclusive of all others. It is worthy of special remark that, although the investigations were made within individual counties, the solution of the problem recommended does not involve the county-unit plan, which is so often regarded as the panacea for organizational ills.

TOWARD FREE POPULAR SECONDARY EDUCATION IN FRANCE

From time to time advocates of a selective secondary education are still encountered in this country. It is their habit to commend the highly selective secondary schools in certain European countries as preferable to our own. Evidence increases that the movement in these same countries is toward the popularized secondary school. The report of a recent additional step in this direction in France has appeared in the *Christian Science Monitor* and is quoted in full.

Almost unnoticed, another extension of free popular education in France has been made. Beginning next autumn, no tuition will be charged in the third grade of the secondary schools. This is the third step in three years toward complete abolition of the tuition fee which has hitherto been charged in the state *lycées* and colleges. It was approved by Parliament, almost as a matter of course, when the budget for 1932 was being voted in March.

The ease with which the measure passed the Chamber of Deputies is all the more remarkable by contrast with events of a year ago, and again the year before that. In 1930 tuition fees were abolished in the lowest grade of the second-

ary schools, but only after a long and hard-fought parliamentary battle which nearly proved to be the undoing of the Tardieu cabinet. Last year a proposal to extend gratuity of instruction to the second grade of these schools precipitated still another parliamentary tumult which placed the Laval ministry in a precarious position. Yet this year further extension of free instruction caused hardly a ripple on the surface of the parliamentary pond.

The reason for this apparent apathy is to be found not in any change of attitude on the part of champions of free state schools and their antagonists but rather in the existing political situation. The budget this year was passed in record time, due to a general agreement on the part of all the leading parties not to precipitate any prolonged debate. It was this virtual truce which permitted the school bill to pass without the usual clash between defenders of free state schools and the champions of private denominational institutions.

Primary schools in France have been free, and attendance therein compulsory, for fifty years. Only last summer admirers of the *école unique* celebrated the semicentennial of what was perhaps Jules Ferry's greatest accomplishment. But tuition was not abolished in any grade of the secondary schools until 1930, and even now this change is being made gradually, at the rate of about one grade each year.

One result of doing away with tuition has been to increase the attendance at secondary schools. Opponents of free tuition maintain that this influx has been due to other factors, such as the rise in the birth-rate in the years immediately following the war, but there appears little doubt that doing away with tuition has played an important part in increasing enrolment.

The question has been a hard-fought political issue because it has inevitably opened up the whole subject of public versus private and secular versus religious education. Popular sentiment undoubtedly favors a complete system of free state schools, but private religious instruction still has many defenders.

CIVIC EDUCATION BY RADIO

The post-election series of broadcasts on "You and Your Government" will begin Tuesday, November 15, and will be continued on the same day of each week until December 27. These will come at 8 P.M., eastern standard time, and will be given over a network of approximately forty stations in all sections of the country. They are presented by the Committee on Civic Education by Radio of the National Advisory Council on Radio in Education in co-operation with the American Political Science Association—a committee of political scientists, publicists, educators, and others sufficiently outstanding and representative to assure presentations that are both constructive and instructive.

The general concern of the series will be "Constructive Economy

in State and Local Government," the themes for the seven broadcasts to be as follows: "Retrenching in State and Local Expenditures—A General View" (November 15), "Redrawing the Boundaries of Local Government" (November 22), "Redistributing Functions of State and Local Government" (November 29), "Reorganizing County Government" (December 6), "Reforming Financial Methods" (December 13), "Reducing and Limiting Local Indebtedness" (December 20), and "Revising Our State and Local Tax System" (December 27). The staff announced to participate in the series is one of distinction.

Copies of the program are supplied free on request to the National Advisory Council on Radio in Education at 60 East Forty-second Street, New York City. To increase the educative value of the series, the committee has prepared a listener's handbook, copies of which are distributed free of charge by the University of Chicago Press, 5750 Ellis Avenue, Chicago. The handbook contains the program, suggestions for listeners, outlines of the subjects to be discussed, and a bibliography of supplementary references prepared with the assistance of the American Library Association. The suggestions include a brief statement to teachers indicating how the series may be used in connection with courses in problems of democracy, current events, civics, and American government. The University of Chicago Press is printing each lecture in a pamphlet, which will be mailed promptly after each broadcast, the charge for the pamphlets being ten cents each.

AMERICAN LEADERSHIP IN EDUCATIONAL RESEARCH

From the University of London Press comes a little book on *Research in Education—An Introduction*. The author is Robert R. Rusk, principal lecturer in education to the Glasgow Provincial Committee for the Training of Teachers and director to the Scottish Council for Research in Education. He has other books to his credit on a variety of aspects of the field of education. This book contains brief chapters on such subjects as the "History of Research in Education," "Scope of Educational Research," "The Technique of Research," "Research and the Teacher," and the "Organization of Research." It indicates conversance with the problems and the liter-

ature of research in education and is interestingly written, but not for these characteristics is comment made on it here. The point in mentioning the monograph is the way in which it demonstrates the leadership of the United States in research in education. The progress in educational research in this country is acknowledged in the first paragraph of the Preface.

This monograph seeks to present in a not too technical fashion the claims for research in education. In America its publication might be regarded as superfluous, as a glance at the Bibliography appended to the concluding chapter will reveal; as, however, no previous work has appeared in Britain under this title, the writer hopes that the following pages may serve to focus increasing interest in this country on the subject of research in education.

The bibliography referred to contains nineteen items, all published in the United States. The text of the book, also, is pervaded by the names of American authors and by quotations from, or discussion of, their works. One encounters on almost every page names like Ayres, Buckingham, Charters, Freeman, Hartshorne, Judd, McCall, Monroe, Pressey, Rugg, Thorndike, and Whipple, whereas names of persons from other countries, like Binet, Meumann, Stern, and Winch, appear much less frequently.

It is gratifying to know from such a source, rather than from our own statements, that, relatively, we have made progress in educational investigation. This is not to say that the scope of educational research in this country is not still subject to extension and its quality still subject to improvement.

THE COST OF FREE TEXTBOOKS

The *United States Daily*, drawing on information made available by the Division of Statistics of the United States Office of Education, reports that the average annual cost of textbooks furnished free to pupils is \$1.58 a pupil. The total cost in the systems in which the practice of providing free textbooks is followed is four million dollars annually. The figures cited are based on compilations from 227 cities in 14 states and the District of Columbia where textbooks are distributed free to pupils. The following additional information was released.

The cities range from 10,000 population to over 100,000 and are divided into three groups: the first embracing all over 100,000, the second those between

30,000 and 100,000, and the third between 10,000 and 30,000. The schools include the elementary, the junior high, and the high school. More than 2,500,000 pupils are enrolled in the schools of the 27 cities.

On the basis of pupil enrolment, the per capita cost of textbooks computed for the three educational levels shows an increase for each population group and in each level of a group. The group of largest cities shows the smallest per capita cost. In the elementary schools for the first group of cities, the textbook cost per pupil is given as \$1.17, which is based on an elementary enrolment of 38,861 pupils in the average city group.

In the second population group, the elementary enrolment for the average city is 6,479 pupils, while the per capita cost for the elementary-school textbooks for the second group is \$1.21. In the third group the elementary enrolment of the average city is 2,732 pupils, and the per capita elementary textbook cost is \$1.34.

The larger the enrolment unit, the smaller is the per capita cost for textbooks. A like condition holds true for the junior high school and for the high school, except as between the high-school units of the second and third groups where the per capita costs are the same.

The per capita costs for junior high are as follows: for the first group of cities, \$1.92; for the second, \$2.03; and for the third, \$2.06. For high schools, the per capita cost for the first group is \$2.63, and \$2.87 for the second and third groups, respectively.

A total of 1,732,085 elementary pupils are represented in the 227 cities studied, 356,381 junior high school pupils, and 451,634 high-school pupils. A total of 2,540,100 pupils are represented in all levels of education of the cities furnishing textbooks free.

The evidence suggests again the relatively small additional cost, in a system of free education, of including in the public contribution the outlay for textbooks used. It is difficult to see why many systems strain at the additional expenditure.

SCIENCE CLUBS

The continuance of the detailed study of problems and aspects of the extra-curriculum indicates persistence of the conviction that values inhere in the activities and of the intent to derive these values. A recent publication relates to science clubs in the high school (Louis A. Astell and Charles W. Odell, *High School Science Clubs*. Bureau of Educational Research Bulletin No. 60, University of Illinois). The bulletin consists of three parts. The first is an account of the science clubs reported by teachers of science in the high schools of Illinois during the school year 1930-31. This part deals with the general pur-

poses of the clubs and their rules and regulations with regard to such matters as membership, officers, meetings, dues, and other more or less formal concerns. This part deals also with programs and other activities of such clubs. The second part comments on the clubs described in the first part and offers suggestions concerning science clubs in general. Among the topics treated in this part are administration, supervision, and organization. Among the recommendations as to practices classified as organizational are the following:

1. The general administrative plans for clubs should not interfere with each other. The element of time available enters into the question here and at other points. . . . Just as thirty minutes should represent an ample time for a business meeting, so an hour to an hour and a half should be adequate for the absorptive powers of the members. Reductions in time used may be made with niceties of program organization. If the period of time for the regular program is reduced to forty minutes or less, it means modification and reduction of such general plans as are suggested here.
2. There should be a maximum age and an experience range of three or four scholastic years. In combination junior-senior high schools, junior and senior divisions are likely to be desirable. In the larger schools, divisions based on subject matter represent probable courses. No matter how large the school, there should be joint meetings of all science clubs or sections, as well as occasional meetings for other clubs and extra-curriculum activities in the school. Only in cases of special schools for boys and girls does it seem justifiable to base the club or section membership wholly or in part on sex.
3. The available and assigned rooms should be able to accommodate the total enrolment.
4. A large proportion of the membership should serve more or less continuously as officers, committee members, and otherwise.
5. A large proportion of the membership should have opportunities to participate in the programs and other activities. This means the use of group activities, such as short science plays, pageants, special games, and various forms of humor, as well as appropriate music in various forms.
6. There should be occasional selected programs for civic organizations and science clubs from other schools.
7. Vacation and year-around projects of civic and scientific-training value should be included in the program of activities of each club.
8. Contests terminating in annual state-wide competitions should be promoted.
9. State programs of consequence in which representative club members as delegates participate should be promoted.

The third part contains an annotated bibliography. One is astonished to find that the bibliography includes more than four hun-

dred items regarded by the authors as more or less pertinent to the subject. Publications of this specialized type should be helpful in efforts to secure the educational benefits claimed for these organizations.

A COMPILATION OF SCHOLARSHIPS AND FELLOWSHIPS

The Office of Education in Washington has made available a comprehensive list of scholarships and fellowships available in the colleges and universities of the United States (Bulletin No. 15, 1931). The work of compilation was done by Ella B. Ratcliffe, of the Division of Colleges and Professional Schools. This information has formerly been available only in scattered form in the catalogues of individual institutions of higher learning.

The compilation was made from data obtained from catalogues, verified and augmented by the institutions themselves by means of a questionnaire, copies of which were sent to all the higher institutions in the country. The lists, arranged alphabetically by states, include the astonishing total of 34,013 scholarships, fellowships, and assistantships awarded in 1927-28 at 402 higher educational institutions from funds supplied by five main sources: the states; the higher institutions; organizations of different types, including alumni, clubs, patriotic societies, and industries; religious denominations; and private individuals. The amounts ranged in value from less than \$50 to \$1,500 and above. Undergraduate students were awarded almost twenty-nine thousand, the remaining four thousand and more being reserved for graduate students engaged in advanced study and research. The grants at the undergraduate level are usually made without specification of the field of study. This freedom is not so characteristic of grants at the graduate level.

The aim of the bulletin is much more than merely to impress a reader with the large number of scholarships and fellowships available. The bulletin should prove useful in the guidance of students at both secondary and collegiate levels. We are assured by the author of the pamphlet that "the demand for it is evidenced by the large number of requests from both students and parents, particularly in regard to undergraduate scholarships which come to the Office of Education. Principals of high schools, superintendents, and deans also receive numerous inquiries about scholarships available."

CO-ORDINATION OF THE HIGHER INSTITUTIONS OF OREGON

Even at this early stage in working out the plan, the advantages of co-ordinating all the higher institutions under state auspices into a single system in Oregon are beginning to appear. One of the first publications of the State Board of Higher Education was a bulletin descriptive of the curriculums and the objectives of the various types of education offered in the six higher institutions of the state, namely, the university, the college of agriculture, the medical school, and the three normal schools. Copies were sent to the students of all the institutions and to all those graduated from the high schools of Oregon in 1932. This publication has been followed by a bulletin of entrance information, which within the scope of twelve pages presents essential materials concerning opening dates, admission requirements, placement examination, fees and deposits, board and room, housing regulations, "summary of student costs," self-support, loan funds, and the proscription of the use of automobiles by students. The information under each of these headings is given for all institutions at once, facilitating comparison where practices differ and aiding the reader, be he prospective student or adviser of prospective students, to a better understanding of conditions of entrance and living at the several higher institutions represented. At the least, these first publications are a prophecy of large benefits to accrue from the plan of co-ordination that has been launched.

PLANS CHARACTERIZED BY THE UNIT ASSIGNMENT

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SCOPE OF THIS REPORT

A group of related teaching procedures.—In the past twenty years many thousands of pages of educational literature have been dedicated to expositions and discussions of teaching procedures here classed as plans characterized by the unit assignment, namely, (1) the project method, (2) the problem method, (3) differentiated assignments, (4) long-unit assignments, (5) the contract plan, (6) the laboratory plan, (7) individualized instruction, (8) the Morrison plan or some modification, (9) the Dalton plan or some modification, and (10) the Winnetka technique or some modification. Frequently these plans, methods, or techniques have been recommended highly in the literature as provisions for individual differences. Necessarily, therefore, they became subjects of intensive and systematic study in the National Survey of Secondary Education as an integral part of a major project dealing with provisions for individual differences. Among the questions answered by intensive and systematic study of this group of related teaching procedures, the following may be mentioned. First, as described in the literature, what are the distinguishing characteristics of each method? Second, as revealed by an analysis of the actual practices of outstanding schools, what are the differentiae which distinguish each procedure from the others? Third, to what extent does the description of each procedure given in the literature coincide with the actual practices of outstanding schools in which the procedure is reported to be in use?

Topics considered.—No comprehensive exposition of the findings of this investigation is contemplated within the limits of the present article. Such an exposition has been prepared and will appear as one part of a monograph of the National Survey of Secondary Education.

The space here available is occupied by a brief discussion of the project method and its relation to the other procedures under consideration, by a statement of certain interesting findings resulting from four comparative studies involving both the literature and the practices of outstanding schools, and by the presentation of two specimen unit assignments which illustrate significant trends.

**THE PROJECT METHOD AND ITS RELATION TO OTHER PLANS
CHARACTERIZED BY THE UNIT ASSIGNMENT**

The project method the earliest and the most widely discussed.—Throughout the fifteen-year period from 1916 to 1930, inclusive, the project method has been much more widely discussed than any of the other plans, methods, or techniques under consideration. This fact may be illustrated by reference to a cross-section of the literature dealing with the various procedures classified in the *Reader's Guide* during the period mentioned. In this particular cross-section of the literature 213 articles are included, which are concerned directly or indirectly with the development of more effective teaching or learning units or with the more efficient use of these units in the educative process. Of the entire group of 213 articles, 123, or considerably more than half, are classified under the heading of "Project Teaching." The proportion for the earliest years of the period is even higher. In fact, all articles listed for the first three years (1916-18) are classified under "Project Teaching." For the entire fifteen-year period the articles, other than those listed under this heading, may be classified as follows: Dalton plan, 38; individual or individualized instruction, 36; Winnetka plan or technique, 6; contract plan, 3; problem method, 3; unit assignment, 2; laboratory plan, 1; Morrison plan, 1.

The original meaning of "project."—The cross-section of the literature now under consideration suggests that projects were first developed in agriculture, home economics, and industrial arts. They included such undertakings as the growing of an acre of corn, the making of a dress, or the building of a library table. In the early articles listed under "Project Teaching" a marked tendency prevails to regard the project as a very specific kind of teaching or learning unit, namely, a unit consisting in something done for its own sake,

the learning product being incidental.¹ By definition, the "project" is a unit of work intrinsically interesting to the pupil, but no one unit during any specified period of time is likely to arouse an intrinsic interest in the pupils of an entire class. Hence, the definition seems to imply that a given course or a part of a course, when presented by the project method, will be organized into a series of groups of optional, alternative units, the mastery of any one unit in any group yielding the desired learning product and producing such sequence as seems necessary or desirable (unless organization and planned sequence are to be totally ignored). The articles analyzed show that such a unit and such an organization of school work have appeared to many educators to possess a limited range of applicability. In other words, the early concept of the project was not that of a teaching or a learning unit universally applicable in all subject-matter fields. In fact, many investigators² have declared that the project is by no means adapted to all phases of school work even within the three subject-matter fields mentioned.

Early efforts to transmute all teaching and learning units into projects.—Despite these declarations, the apparent success which has attended the use of the project method has stimulated certain investigators of educational procedures to conduct a persistent search for an alchemy by which all teaching and learning units may be transmuted into projects.³ The quest has been predestined to failure by the hard fact that much of the curriculum, as it has been conceived in the past and as it is now generally conceived, does not lend itself to a type of organization which emphasizes classroom methods providing only incidental learning. As if tacitly admitting this point, some writers have directed their efforts toward an equally futile goal: they have endeavored to redefine the word "project" in such a way that it will comprehend the intrinsic qualities of all teaching and learning units. The advantages sought from such an arbitrary redefinition are not at all clear, since the inherent nature of teaching

¹ Compare Boyd H. Bode, *Modern Educational Theories*, chap. vii. New York: Macmillan Co., 1927; David Snedden, "The 'Project' as a Teaching Unit," *School and Society*, IV (September 16, 1916), 419-23.

² See David Snedden, *op. cit.*

³ Compare W. W. Charters, "The Limitations of the Project," *Addresses and Proceedings of the National Education Association*, LIX (1921), 428-30.

or learning units is not likely to be transformed by the mere application of a name.

Resultant confusion.—On the other hand, the resulting disadvantages have been very real and self-evident. Efforts to make projects of teaching or learning units which inherently are not projects, combined with attempts to redefine "project" as a comprehensive term including all teaching and learning units, have contributed materially to the confused thinking now generally prevailing concerning all plans characterized by the unit assignment. The original meaning of the term "project" has been obscured, and the average reader has been baffled, by a number of more or less gratuitous, conflicting, yet seemingly authoritative, definitions.

No authoritative criteria for the first seven procedures.—In these brief comments the terms "project" and "project method" have been singled out for discussion primarily for illustrative purposes. If space permitted, analogous situations could be presented in connection with other plans characterized by the use of unit assignments. During the period under discussion numerous terms, such as "goal," "problem," "contract," "job," and "assignment," have been coined to designate teaching or learning units of one kind or another. Like the term "project," these terms also have been defined and redefined freely. Consequently, so far as the literature is concerned, a general confusion prevails as to the nature of the first seven procedures listed in the opening paragraph of this article. The features reported by one writer as intrinsic in one of the procedures are set forth by other writers as inherent in the other procedures. Hence, if a person sought merely to establish the fact that there is no such thing as an orthodox project method, problem method, differentiated assignment, long-unit assignment, contract plan, laboratory plan, or method of individualized instruction, he need go no farther than the literature of the field, where the evidence is written in letters so high that he who runs may read.

The last three procedures.—As for the last three plans characterized by the use of the unit assignment, namely, the Morrison plan, the Dalton plan, and the Winnetka technique, authoritative and reasonably objective differentiae may be derived from an analysis of the

writings of Professor Morrison, Miss Parkhurst, and Superintendent Washburne.

Studies of practice.—In the following section excerpts are presented from the findings of four comparative studies involving all ten plans characterized by the unit assignment. Just what is done in excellent schools in which courses are offered by one or another of the ten procedures? Are the practices really different, or are they only called by different names?

THE VARIOUS PROCEDURES IN ACTUAL PRACTICE

Four comparative studies.—An investigation was made to discover just what practices of secondary schools are included under the widely used terms listed in the first paragraph of this article. In this investigation four comparative studies were made, representing 457 secondary schools distributed to all states in the Union. Three of these studies dealt, respectively, with the Morrison plan, with the Dalton plan, and with the Winnetka technique. In each study the actual practices of a highly selected group of schools reporting the use of one of the three procedures were compared, point for point, with certain fundamental features of the plan or technique as set forth by its originator. In the case of the remaining seven procedures a different method was used. Since each of these procedures springs from diverse sources, no authoritative external criteria with which to compare practices were available. Therefore, a systematic intercomparison was made of the practices in seven groups of highly selected secondary schools classified according to their preferences for one or another of the seven terms.

The first three of these comparative studies must be set aside in this article with the statement that detailed comparisons failed to disclose any secondary schools in which the procedures approximated either the Dalton plan or the Winnetka technique closely enough to justify the use of either term to indicate what the schools were doing. A few schools were found in which the methods, with obvious deviations, were roughly paralleling certain procedures advocated by Morrison. On the whole, however, the practices of all three groups of schools were much alike, all being attempts to develop classroom procedures adapted to the use of some form of the unit assignment.

The fourth comparative study brought out three lines of evidence showing the essential identity of the practices in the remaining seven groups of schools regardless of the name preferred for the practices. The findings can be only briefly summarized here.

The first line of evidence.—With but one exception, the offerings of all 362 schools included in these seven groups are organized in the usual way; that is, the offerings are expressed in terms of the usual subject-matter fields, subdivided into the usual required and elective courses, which in turn are subdivided into units and unit assignments called by various names. The usual number of units defined in the usual way are required for graduation. This finding is of primary significance in the consideration of the problem and the project methods, since the literature of the field plainly leads one to expect curriculums organized along non-traditional lines.

The second line of evidence.—The second line of evidence reveals the rather startling fact that the definition of a *problem* given by respondents from schools using the problem method does not vary in any significant way from the definition of a *project* given by respondents from schools using the project method. This identity holds whether the respondents are considering the abstract virtues of a *good problem* or project or whether they are considering merely the actual characteristics of *most problems* or projects in use in their schools.

If the definition limits the genus to "an activity," in schools using the problem method a *good problem* is regarded by one-half or more of the respondents as an activity which is judged by both the pupil and the teacher to be worth while and which is initiated by the pupil, is carried on in a real life-setting, and is of immediate practical value to the pupil. Exactly these same five differentiae are employed most frequently to define a *good project* by respondents from schools using the project method. The parallel does not stop at this point. Respondents from schools using the problem method most frequently report that *most problems* actually in use are activities which are judged by the teacher to be worth while and which are initiated by the teacher, accepted by the pupil, and directed by the teacher. Thus, a wide and clearly recognized gap separates the ideal from the practical. Moreover, the *good project* is judged to differ from

most projects in actual use by a similarly wide interval. In other words, in these highly selected schools the problems and projects in actual use are not necessarily judged by the pupil to be worth while, are not initiated by the pupil, are not necessarily of immediate practical value to him, and he is not left largely to self-direction in his efforts to master them.

If the definition be changed so that the genus described is not "an activity" but "a unit of learning or of teaching," to most respondents using the problem method a *good problem* is a unit of learning or of teaching which is initiated by the pupil and judged by both the pupil and the teacher to be worth while, which is of immediate practical value to the pupil, and in the mastery of which the pupil is almost entirely self-directing. To most respondents from schools using the project method a *good project* is exactly the same thing. Moreover, *most problems* in schools using the problem method, like *most projects* in schools using the project method, are units of learning or of teaching judged by the teacher to be worth while, initiated by the teacher and accepted by the pupil, wherein the pupil receives much direction from the teacher either orally or in the form of printed instructions.

Statistical treatment of the data confirmed the common-sense conclusion that in the actual practice of these schools the terms "problem" and "project" are synonymous. In all, "problem" and "project" were compared in thirty-eight different ways. In no instance was the difference found to be statistically real in the sense that the difference divided by its standard error is 3.0 or more.

The third line of evidence.—The third line of evidence to be mentioned here is derived from a comprehensive and detailed exploration and intercomparison of the practices of the seven groups of schools. This comparative study is based on the tabulated responses of the seven groups of schools to 21 pages of inquiry material carrying 641 items of information. The tabulated responses answered in clear-cut detail 37 vital and pertinent questions so planned that, if differences actually exist in the practices of the several groups of schools under the various terminologies, then objective answers to the questions should reveal the nature of the differences. When the thousands of responses of the 362 schools to the 641 items were tabulated,

classified according to the terminology of procedure preferred, reduced to percentages, and compared, the evidence showed beyond a doubt that the practices of the seven groups of schools are essentially alike. If the percentage reaction to an item is high in one group of schools, it is high in the other groups. If it is low in one group, it is just about as low in the other groups. Precisely this situation obtains for each of the 641 items. From a common-sense standpoint, the conclusion is justified that these groups of schools reporting different names for their procedures are doing the same things in the same ways. Practices typical of one group are typical of all. Practices tabooed in one group are tabooed in all. Moreover, this conclusion is supported by statistical treatment of the data. For example, the percentage reactions of the seven groups to seventy items taken at random were studied. For each item there were 21 different pairs of percentages to be compared. Hence, for all 70 items there were 1,470 paired percentage reactions to be considered. Of these 1,470 pairs of compared percentage reactions, only 43 pairs, or less than 3 per cent, show differences which are statistically real in the sense that the difference divided by its standard error is 3.0 or more. Seventy-two, or less than 5 per cent of the critical ratios, are 2.5 or greater. Further random samplings yielded practically identical results.

The conclusion is inevitable that, in practice, differentiated assignments, long-unit assignments, individualized instruction, the contract plan, the laboratory plan, the problem method, and the project method are one and the same thing, differing only in name. This conclusion carries no implication that uniformity of practice prevails in any or in all of the seven groups of schools. On the contrary, great variability exists. However, the variability of practice in any one of the groups of schools is essentially the same in kind and in degree as the variability in any other group, and hence in all groups. A report of the nature of the teaching procedures common to these schools has been prepared and will be published in a monograph of the survey but cannot be given in this brief report.

THE UNIT AND THE UNIT ASSIGNMENT

The unit defined.—As already stated, the offerings in the schools studied are expressed in terms of the usual subject-matter fields, sub-

divided into the usual required and elective courses, which in turn are subdivided into units and unit assignments called by various names. The terminology employed to designate these major allotments or assignments of subject matter is completely chaotic, fourteen different terms being used. Careful study suggests that all coordinate major subdivisions of a given course in these schools might well be designated by the term "unit." The term "project" might then be reserved for that type of unit or that phase of a unit wherein the pupil engages in an activity purely for its own sake, the learning product being incidental; and the term "problem" might be reserved for that type of unit or that phase of a unit wherein the central feature is the complete act of thought as defined by Dewey. The data also suggest that a more definite distinction should be maintained between the unit and the unit assignment. Apparently, in the most acceptable sense of the term, the units derived from the analysis of a given course are the objectives of the course. That is, the "unit" is best regarded as a concept, attitude, appreciation, knowledge, or skill which is to be acquired by the pupil and which, if acquired, will presumably modify his thinking or his other behavior in a desirable way. The units of a given course vary greatly from school to school. None are based on adequate research. Obviously, so long as the units of a course are derived empirically, they will continue to be highly variable rather than fairly constant entities, differing in nature, importance, and magnitude when determined by different teachers.

The unit assignment defined.—On the other hand, the "unit assignment" should consist of suggested or required activities and experiences planned by the teacher to enable the pupil to master the unit, that is, to acquire the desired concept, attitude, appreciation, knowledge, or skill. The unit assignment is most effective when differentiated to take into account such factors as the different abilities, interests, needs, previous experiences, and immediate environment of the pupils for whom it is planned. It is best described in terms of its contents as employed in the schools investigated. In these schools the unit assignment usually consists of: (1) directions for study, (2) references for reading, (3) a list of supplementary projects, (4) an outline of minimum essentials, and (5) a tentative time allotment. The assignment also may possess one or more of the following char-

acteristics: (1) an "approach paragraph" to stimulate the pupil's curiosity and interest; (2) an introductory statement of the objectives of the unit; (3) a short list of basic questions; (4) necessary explanations; (5) a word-study list or a vocabulary of difficult words; (6) experiments to be performed; (7) topics for discussion, dramatization, or demonstration; (8) notice of special difficulties to be encountered; (9) samples of how to do the work required; (10) lists of materials and apparatus needed; (11) assignments of individual reports to be made in class; (12) additional elective work; (13) references to correlation with other subjects; and (14) a test on the assignment.

The unit assignment in two types of subject-matter fields.—The unit assignments submitted for analysis by the various schools to the staff of the survey varied exceedingly in length and in variety of content. However, a distinct tendency was noted for unit assignments in subjects like typing, shorthand, foreign language, and mathematics to be much briefer than unit assignments in such subjects as English, social studies, and science. The explanation seems to be that in subjects such as those composing the former group the teacher tends to rely on a single textbook. The accepted units and their sequence are rather rigidly determined for the teacher. Moreover, the textbooks, to a large extent, are themselves guide sheets suggesting the activities and experiences by means of which the units may be mastered. Hence, the unit assignment prepared by the teacher is supplementary to the unit assignment already contained in the textbook and tends to be brief. To make it long is merely to duplicate textual material. On the other hand, in subjects such as those composing the latter group the teacher seems to rely less on a single textbook, probably because no one textbook contains all the desired units in the preferred sequence or because the teacher wishes to recognize several alternative procedures by means of which the unit may be mastered.

The unit assignment abbreviated in two desirable ways.—Even in subjects such as English, social studies, and science, the unit assignment is being abbreviated in two desirable ways. First, each item of the supplementary and elective materials, so commonly reproduced on the mimeographed assignment or guide sheet, is removed from

the guide sheet and placed on a card three inches by five inches or four inches by six inches in size. These cards are filed and used by the pupils as catalogue cards are filed and used in a library. The guide sheet, carrying only the fundamental assignment, thus appears much less formidable and confusing to the pupil. Moreover, the costs of clerical help, stencils, and other supplies are reduced, and new electives and supplementary problems or projects may be added at any time to the card index without altering the stencil for the basic assignment. A second desirable reduction in the length of the guide sheet usually may be made if the teacher's plan of the unit, from the teacher's point of view, is retained (as it should be) for the teacher's use and is not illogically woven into the materials which properly constitute the unit assignment. The second specimen unit assignment reproduced later illustrates this point.

Two specimen unit assignments.—Available space does not permit the reproduction here of any considerable number of specimen unit assignments submitted by the various schools. However, two unit assignments are reproduced, the first being an assignment in algebra submitted by the South Philadelphia High School for Girls, Philadelphia, Pennsylvania, which illustrates how a guide sheet may be adequate and yet be brief because the textbook carries a series of units satisfactory to the teacher and, for the most part, supplies adequate stimuli to pupil activity. The guide sheet carries such supplementary stimuli as the teacher deems desirable and makes possible such changes in the sequence of the units of the course as the teacher may prefer to make.

Algebra I.—Time: one week. Texts: Durell and Arnold, *First Book in Algebra*; Schorling-Clark, *Modern Algebra*; Schorling-Clark-Lindell, *Instructional Tests in Algebra*. Fractions (all work in Durell and Arnold).

1. Study p. 160. Note that fractions in algebra in general have the same properties as fractions in arithmetic. Transformations of fractions.
2. Reduction of fractions to lowest terms. In Exercises 86 and 87, pp. 161-62, work the odd-numbered problems.
3. Reduction of an improper fraction to a mixed number. Study p. 163 and work Examples 2, 4, 5, 7, 10, 12, 14, 20, and 22 in Exercise 88.
4. Reduction of a mixed expression to a fraction. Study p. 164 and work Examples 6, 9, 11, 14, 19, and 20 in Exercise 89.
5. Do you remember how to do addition, subtraction, multiplication, and division of whole numbers? Test yourself by working Example 14, p. 44;

Example 37, p. 48; Example 30, p. 82; Example 33, p. 82; Example 20, p. 87.
Work Examples 28 and 33, p. 19.

6. Maximum assignment: Study pp. 176 and 177, Part II. Work Examples 1-3, p. 178; Examples 1-3, p. 180; Examples 16-18, p. 180.

A unit clearly differentiated from the corresponding unit assignment.—The second illustration¹ to be given here is one of the few specimens submitted to the staff of the survey wherein the unit is clearly differentiated from the corresponding unit assignment. Note that the analysis of the unit is the teacher's plan. The *unit* is stated as a concept which is analyzed into component concepts stated as problems. Each problem is broken down into sub-ideas or sub-concepts. The *unit assignment* is planned after the unit has been carefully formulated. Only the unit assignment is placed in the hands of the pupil and not necessarily the whole assignment at any one time. It is important to note that the unit assignment is the plan for the pupil activities and the pupil experiences which are judged by the teacher to be those best fitted to enable the pupil to master the unit.

THE UNIT

I. Unit concept: Plants, depending upon their structure, their environment, and stage of development, use different kinds of food. This food is changed so it can be transported for use in providing energy to build new living material. Materials in food of no use to the plants in these processes are eliminated.

II. The problems of the unit

- A. Do all plants use the same kinds of food?
- B. What factors govern the kinds of food used by plants?
- C. How is organized food made available to the parts of the plant needing it?
- D. How is digested food carried to the parts needing it?
- E. How are plant foods used?
- F. What is done with the food parts which the plants are unable to use in growth?

III. Sub-ideas involved in each problem

Problem A

- 1. Most green plants use food manufactured from raw materials.
- 2. A few green plants depend on animal matter for their nitrogenous food.

¹ Prepared and submitted by John F. Lewis, head of the department of biology, Connellsville High School, Connellsville, Pennsylvania.

3. Plants without chlorophyll depend on manufactured food for their living.

Problem B

1. The structure of plants limits the type of food used.
2. The environment of plants limits the availability of the food supply.
3. The plant's stage of development limits the kinds of food used.

Problem C

1. Ferments secreted by plants work on the organized food of green plants in order to change it to a soluble form which can be carried to the plant parts needing it.
2. Ferments secreted by non-chlorophyllous plants dissolve organized food so that it can be absorbed by them.

Problem D

1. In the simplest plants absorption is carried on by osmosis and diffusion.
2. In plants of more complex structure (algae, fungi, mosses, etc.) absorption and distribution are carried on by osmosis, diffusion, and capillary attraction.
3. In the ferns, fern allies, and flowering plants absorption and distribution are carried on by osmosis, diffusion, capillary attraction, and a complex transportation system.

Problem E

1. Available food is converted into new building material and energy for growth.
2. Chemical and physical forces furnish the basis for the change from dissolved organized food to new material.

Problem F

1. Gaseous wastes (carbon dioxide and oxygen) are released by living cells.
2. Liquid wastes (generally water) are lost in the air by transpiration.
3. Mineral wastes are stored in the parts of the plant least used in growth.

THE UNIT ASSIGNMENT

How do plants use food?

Reference Text: *Practical Botany* by Bergen and Caldwell.

Supplementary Text: *Textbook of Botany* (Part 2, Physiology) by Coulter, Barnes, and Cowles.

PROBLEM A

What foods do plants use?

Exercise 1.—What foods do green plants use? Paragraph 342 (p. 371).

Exercise 2.—What foods do carnivorous plants use? Paragraph 354 (p. 385).

Exercise 3.—What foods do plants without chlorophyll use? Paragraph 342 (p. 371).

Summary exercise.—Answer the question asked in the problem.

PROBLEM B

What factors govern the kinds of food used by plants?

Exercise 1.—Do the data obtained from studying the problems of the unit on how plants obtain their food lead you to believe that the structure of each plant has something to do with the kind of food the plant uses? Why?

Exercise 2.—Does the place in which the plant lives have anything to do with the kind of food it can obtain? Explain.

Exercise 3.—Does the stage of development attained by each plant decide the kinds of food it may use? Read Paragraph 152 (p. 164), Paragraph 175 (p. 189), Paragraph 225 (p. 232), Paragraph 128 (p. 137), Paragraph 133 (p. 142).

Summary exercise.—Answer the question asked in the problem.

PROBLEM C

How is organized food made available to the plant parts needing it?

Exercise 1.—Read Paragraph 71 (p. 78), Paragraph 72 (p. 78), Paragraph 134 (p. 144), and explain the ways in which organized food is prepared for use in green plants.

Exercise 2.—Read Paragraph 355 (p. 385), Paragraph 356 (p. 386), Paragraph 357 (p. 387), and tell how this type of plant digests its nitrogenous food. Since this plant group possesses chlorophyll, its starchy foods are digested in the same manner as the green plants mentioned under Exercise 1.

Exercise 3.—Read Paragraph 37 (p. 36), Paragraph 210 (p. 220), Paragraph 219 (p. 226), and tell how plants without chlorophyll digest their food. Are the ferment mentioned akin to enzymes? (See index under "enzymes.")

Summary exercise.—Answer the question asked in the problem.

PROBLEM D

How is digested food carried to the parts needing it?

Exercise 1.—Read Paragraph 72 (p. 79), Paragraph 73 (p. 80), and note the ways digested food is carried.

Exercise 2.—Review your data on bacteria and the fungi and decide from what you learned in working out Example 1 (Exercise 1) whether the same processes of food distribution are used.

Summary exercise.—Answer the question asked in the problem.

PROBLEM E

How are plant foods used?

Exercise 1.—Read Paragraph 152 (p. 164), Paragraph 166 (p. 182), Paragraph 168 (p. 184), Paragraph 170 (p. 185), Paragraph 178 (p. 193), Paragraph 181 (p. 196), Paragraph 200 (p. 214), Paragraph 206 (p. 218), Paragraph 222 (p. 229), Paragraph 225 (p. 232), Paragraph 243 (p. 259), and describe in a general way what happens to these plants when digested food material is supplied to them.

Exercise 2.—Observe the common lima bean from its planting until its death, and tell what it does when supplied with abundant digested food material. If you don't know much about the development of the bean, ask your father (most fathers know something about gardening) or some neighbor who knows something of garden things.

Summary exercise.—Answer the question asked in the problem.

PROBLEM F

What is done with the food parts which the plants are unable to use in growth?

Exercise 1.—How are the gaseous wastes of plants eliminated? Read Paragraph 20 (p. 19), Paragraph 17 (p. 15), and tell what happens to the carbon dioxide (CO_2) and oxygen (O) which occur as waste materials in the living processes of plants.

Exercise 2.—How are the liquid wastes of the plant eliminated? Read Paragraph 18 (p. 18) and tell how the excess water of the plant is taken care of.

Exercise 3.—What is done with the mineral material which is not used in the process of growth? When in the library, try to find the answer to this question in *Introduction to Vegetable Physiology*, by Green.

Summary exercise.—Answer the question asked in the problem.

CONCLUSION

A more logical terminology.—So far as the actual practices of secondary schools are concerned, the terms describing the ten plans characterized by the use of the unit assignment are essentially synonymous. The comprehensive terms in this field are "unit" and "unit assignment." The remaining terms are related and specific or are not pertinent. "Differentiation" probably may be taken for granted. "Long" does not properly describe all unit assignments. "Project" and "problem" are specific kinds of units. "Individualized" and "laboratory" are specific terms which call attention to the individualized or directed-study phase of classroom work presented by means of the unit assignment; but instruction by means of the unit assignment is more than individualized, and the classroom is more than a laboratory. "Contract" is a term decidedly out of place in any classroom situation. On the one hand, if the school is one of the "freedom" group in which the work is done for its own sake, a formal agreement between the teacher, as the party of the first part, and the pupil, as the party of the second part, presumably with school marks the chief consideration for which the party of the second part

barters his time and energy, is absurd. On the other hand, in the school where the pupil's work is determined by courses of study and the teacher's judgment, with reasonable but certainly not unlimited allowance for choice of electives by the pupil, the term "contract" is inappropriate since it implies not only the privilege of agreeing to do certain work but also the privilege of deciding not to do it. The latter privilege does not actually exist since much of the work must be required. Hence, under such circumstances, calling the teacher's assignments "contracts" is only a game of "make-believe" not likely to be popular with pupils of high-school age.

The value of the unit assignment.—No provision now being made in the secondary schools for the individual differences of pupils offers greater promise than the unit assignment. If the unit assignment did no more than place the emphasis on the activity of the pupil in the classroom rather than on the activity of the teacher, it would justify its existence. Pupils clearly prefer the unit assignment to the traditional classroom work—an important fact if the pupil's emotional set toward his tasks be regarded as significant. The unit assignment is the basis of remedial work and of work with slow pupils, and it affords interesting challenges to bright pupils. It is the key to differentiated content and teaching procedure whether classes are homogeneous or heterogeneous.

SOUND MOTION PICTURES AS AN AID IN CLASSROOM TEACHING

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With the development of sound motion pictures, there has arisen the problem of the use and value of educational sound motion pictures in classroom teaching. At present little is known of the exact value and place of such pictures as a teaching aid. This lack is due primarily to the recent and rapid development of equipment making sound motion pictures possible. Extensive research is needed to determine the effectiveness of the educational sound films as an aid in classroom instruction. The purpose of the investigation reported in this article was to make a study of the effectiveness of educational sound motion pictures in teaching a survey course in science at the junior-college level.

The problem of using silent motion pictures as an aid in classroom instruction has for many years been the subject of study both in this country and abroad. The value of this type of visual aid has been definitely established by a number of thorough and comprehensive experiments. Such investigations have been conducted in America by Wood and Freeman,¹ Knowlton and Tilton,² and McClusky;³ in England by Consitt⁴ and the Commission on Educational and Cultural Films.⁵ The results of these experiments are generally accepted

¹ Ben D. Wood and Frank N. Freeman, *Motion Pictures in the Classroom*. Boston: Houghton Mifflin Co., 1929. Pp. xxii+392.

² Daniel C. Knowlton and J. Warren Tilton, *Motion Pictures in History Teaching*. New Haven, Connecticut: Yale University Press, 1929. Pp. x+182.

³ Frederick Dean McClusky, "An Experimental Comparison of Different Methods of Visual Instruction." Unpublished Doctor's thesis, Department of Education, University of Chicago, 1922. Pp. 361.

⁴ Frances Consitt, *The Value of Films in History Teaching*. London, England: G. Bell & Sons, Ltd., 1931. Pp. xii+432.

⁵ *Report of the Commission on Educational and Cultural Films*. London, England: Commission on Educational and Cultural Films, 1932.

as showing that the silent motion picture has a place as an aid in teaching. As a result of this general acceptance, wide use of such pictures is being made in the elementary and secondary schools of the nation.¹

A great advance has been made during the last few years in the development of the technique of sound motion pictures and of sound-motion-picture equipment. With the experience gained through the use of silent motion pictures in classroom teaching and the wide extent of their use, the sound motion picture presented itself at once as a possible instructional aid. The first problem in the use of sound pictures in the classroom was the development of suitable pictures and reproducing equipment. A number of producing companies and educators are now working in this field.² The association of sound with motion pictures presents an entirely new educational problem. Before the exact place and value of the sound pictures as a part of an educational program can be established, it is necessary to determine the contribution which the addition of sound to the film makes. This necessity does not involve, it seems, a complete evaluation of motion pictures as teaching aids but the extension of the information which is already available on the use of silent motion pictures, this extension to concern itself primarily with the effectiveness of the association of sound with motion pictures. It is the particular effectiveness of the association of sound with the motion picture which was primarily the concern of this study.

THE PROBLEM STATED AND DEFINED

The purpose of this investigation was to establish as exactly as possible the values of educational sound motion pictures as compared with two other types of teaching aids, namely, silent motion pictures and lecture demonstrations. The investigation was concerned with the subject of science, and its application is to the instruction of college Freshmen. Two phases of the problem of evaluating the use of sound motion pictures as a teaching aid were studied: the relative values of such pictures as a means (1) for the

¹ "Motion Pictures in the Public Elementary and Secondary Schools." United States Office of Education Circular No. 46, 1932 (mimeographed). Pp. 8.

² *A New Force in Modern Education*. New York: Educational Department, Electrical Research Products Inc. Pp. 16.

conveying of concrete knowledge or information and (2) for stimulating and maintaining interests.

The evaluation of educational sound pictures in these two respects has reference to their effectiveness in presenting material relating to the specific field of science. Only in so far as the mental and the emotional processes of acquiring information and developing interests with regard to scientific things are similar to like processes relating to other subjects are generalizations from this study to be made. No attempt was made to determine the values of educational silent motion pictures or lecture demonstrations except as such evaluations were necessary for purposes of comparison with the values of sound motion pictures. It was specifically the purpose of this work to make a study of the comparative values of the sound motion picture as against the other two methods of visual aids used in science-teaching.

NATURE OF THE EXPERIMENT

The School of Commerce, Accounts, and Finance of New York University offers a survey course in science entitled "Outlines of Science." The experiment was carried out in this department during the school terms running from January, 1931, to February, 1932. The students taking the course were divided into two groups for experimental purposes: an experimental group and a control group. The films which were studied were used with the students in the experimental group, and other means of demonstrating the same material shown in the films were used with the students in the control group. Each group consisted of approximately three hundred students throughout the period of the experiment. The two groups were selected in such a way as to make them as nearly equal as possible in mental capacity and educational achievement. The groups were selected on the basis of the students' scores on the Army Alpha Test and the O'Conner Vocabulary Test. During the last part of the experiment the students were rotated, thus becoming members of both the experimental and the control groups at different times.

Three types of comparisons of the educational merits of sound films with the merits of the other two kinds of teaching aids used were made. One consisted in using sound films with the experimental group and identical silent films with the control group. A second

consisted in using sound films with all the students to illustrate certain divisions of the subject matter and slightly different silent films with all the students to illustrate certain other closely related divisions of the subject matter. The third type of comparison was made by using sound motion pictures with the experimental group and identical lecture demonstrations with the control group. In order that a secondary cross-comparison of sound and silent films might be secured, certain silent films on additional divisions of the subject matter of the course were shown to the experimental groups and lecture demonstrations of the items in the silent pictures were shown to the control groups. These procedures provided a comparison of the effectiveness of sound films as a teaching aid with the effectiveness of silent films and a comparison of the effectiveness of sound films with the effectiveness of lecture demonstrations. In addition, an indirect comparison between the effectiveness of sound and silent films was possible through the common element of the lecture demonstrations.

When demonstrations were shown to the control groups in place of the films, these demonstrations were in all cases identical with things shown in the films. For example, when the sound film "Radioactive Substances," showing the nature and properties of atoms, was shown, the accompanying demonstrations used radium material and a piece of apparatus identical with that used in the film, namely, the Geiger atom counter. When the silent film "Revelations by X Rays" was used, in the accompanying demonstration the identical X-ray equipment was used in the classroom in performing the identical experiments shown in the film.

Complete equipment for the projection of sound and silent motion pictures was permanently installed in the classroom. It was so installed as to prevent any distraction of the students by noise or sight of the machine. An operator was provided in order that a sound or silent film might be shown at any time during a class period. The equipment consisted of a standard thirty-five-millimeter projector and the best type of sound-reproducing apparatus.

Thirteen educational films were used in the investigation. The names of the films, the names of the producers, and the comparisons made are given in Table I. Three of the films used had both sound

and silent editions. Five of the other films used were sound films, while the remaining five were silent films. Therefore, in effect, eight sound films and eight silent films were experimentally used. The

TABLE I

FILMS USED IN STUDY OF EFFECTIVENESS OF MOTION PICTURES
IN CLASSROOM INSTRUCTION

NAME OF FILM	SUBJECT	KIND OF FILM	PRODUCER	COMPARED WITH—
Biological Sciences				
1. Castles of Paper.....	Habits and characteristics of insects	Sound	Ufa	Silent version of same film
2. Why Eyes Tell Lies...	Optical illusions	Sound	Ufa	Silent version of same film
3. Killing the Killer.....	Habits and characteristics of the cobra and mongoose	Sound	Talking Pictures Epic	Silent version of same film by Ufa
4. The Great Apes.....	Characteristics of the four great apes	Silent	New York Zoological Gardens	Sound film "Monkeys"
5. Monkeys.....	Characteristics and habits of different monkeys	Sound	Talking Pictures Epic	Silent film "The Great Apes"
6. Life in the Sea.....	Some sea fishes	Silent	Ufa	Sound film "Beavers"
7. Beavers.....	Habits of beavers	Sound	Talking Pictures Epic	Silent film "Life in the Sea"
Physical Sciences				
8. Characteristics of Sound	Sound quality of music and speech	Sound	E.R.P.I.	Lecture demonstration
9. Liquid Air.....	Properties of liquid air	Sound	General Electric Company	Lecture demonstration
10. Radioactive Substances	Structure of atoms	Sound	General Electric Company	Lecture demonstration

TABLE I—Continued

NAME OF FILM	SUBJECT	KIND OF FILM	PRODUCER	COMPARED WITH—
Physical Sciences—Continued				
11. Wizardry of Wireless . . .	Transmission and reception of radio	Silent	General Electric Company	Lecture demonstration
12. Revelations by X Rays.	Production and properties of X rays	Silent	General Electric Company	Lecture demonstration
13. Electromagnetism	Electric generators and transformers	Silent	Carpenter Goldman (Special edition)	Lecture demonstration

films constitute a sampling of the best sound films relating to the subject matter of this course which are at present available. One of the chief difficulties in the study of the educational values of sound films for classroom use lies in the present scarcity of sound films suitable for this purpose.

The films used in the first half of the experiment related to the biological sciences, and those used in the second half of the experiment related to the physical sciences. Five sound films were used in the first part of the investigation and three in the second half. The five sound films used in the first part of the experiment were of the verbal-lecture type. The sound consisted only in a spoken explanation and discussion of the items shown in the film by a speaker who was not seen in the film. That is, the sound was a speaking voice accompanying the various scenes in the films. In the three sound films used in the last half of the experiment, the sound was a vital part of the picture. When an explanation was made, the speaker was in the picture and was working with the object talked about. All sounds which were natural to the objects in the pictures were reproduced by the films. The crackling of a towel, for example, frozen in liquid air was heard in the picture when the experimenter was working with liquid air and talking about it. The sound in this case had the effect of being *of* the activities of the picture rather than *about* those activities.

The regular teaching staff of the department conducted the classes throughout the experiment. Each instructor was familiar with the details of the study and taught both experimental and control groups during the entire experiment. The classes were conducted mainly by lecture demonstrations or films, with some student discussion and questions.

MEASURING DEVICES USED

In the measurement of the outcomes of the sound films, two types of measuring devices were employed: (1) a battery of tests constructed for the purpose and related to the activities included in the films and (2) a photographic record of the students used in the experiment made when these students were subjected to certain predetermined influences. The tests related only to material presented in the classroom, the necessity of accounting for outside reading and study by the students being thus eliminated.

The tests used were of two kinds. One of these tests was a comprehensive examination consisting of ninety-nine different items relating to the factual content of the films, which was used to measure the relative values of the films as a means for conveying specific information. The items in the comprehensive examination were of the multiple-choice and recall types. This test was constructed by the writer, as no satisfactory standardized tests of these subject-matter areas were available. For purposes of administration the examination was divided into two parts. Part 1, relating to the films concerning the biological sciences, was given only once, after the films had been used. The students' scores on this test were used for evaluating the effectiveness of these particular films in conveying specific information. Part 2, relating to the films dealing with the physical sciences, was given twice—before and again after the films had been used. The gains in scores were used in evaluating the effectiveness of the films. The reliability of the comprehensive examination was determined by calculating the half-test coefficients of correlation. From these coefficients the reliability coefficients were determined by the Spearman-Brown formula.¹ The reliability coefficients of the

¹ Karl J. Holzinger, *Statistical Methods for Students in Education*, p. 168. Boston: Ginn & Co., 1928.

different parts of the comprehensive examination ranged from .83 to .91. The reliability coefficients are sufficiently high to justify the use of these tests as measuring devices.

The second kind of test used was an interest examination based on the films and similar lecture demonstrations in the physical sciences. The interest examination was a controlled-choice test consisting of twenty statements with eighty items of choice. The test was given twice, before and again after the films had been used, in order to measure the persistence of interests and the stimulation of new interests.

The second type of measuring device used—the photographic record of the students—was made for the purpose of determining another phase of student interest as stimulated by the sound films, silent films, or lecture demonstrations, namely, the sustained attention of the student as indicative of his immediate interest in the topic being presented. The effect of a distracting stimulus was used to measure the extent of sustained attention. The distracting stimulus was provided by the ringing of a bell or the flashing of a light at a different point in the room from that on which the students' attention was focused by the motion pictures or lecture demonstration. The number of students who were distracted was determined by photographing the class after a sufficient reaction time following the stimulus. The photographic apparatus was mounted in the front of the classroom. The entire apparatus was electrically operated so that the instructor could produce the distracting stimulus and photograph the class at any instant by pushing one electric button. The number of students who were distracted was determined by counting in the photograph the students who were looking away from the center of attention.

RESULTS

Information.—The comprehensive tests used to determine the comparative values of the sound films, the silent films, and the lecture demonstrations as teaching aids in conveying accurate, concrete information showed the following results.

Educational sound films of the type in which the sound is a vital and realistic part of the pictures were compared with lecture demonstrations identical with the items in the film. The results, given in

Table II, showed such films to be equally effective with the lecture demonstrations. The differences in the mean gains of the experimental groups taught with the sound films and of the control groups taught with the demonstrations had experimental constants of 1.0 and 0.7 in favor of the sound films and 0.4 in favor of the demonstrations on three divisions of the tests. These differences are not significant. The three silent films which were compared with identical lecture demonstrations showed similar results. The experimental constants were, in the three instances, 5.3 and 0.4 in favor of the demonstrations and 1.4 in favor of the films. These factors seem to

TABLE II

DIFFERENCE OF MEAN GAINS MADE BY EXPERIMENTAL GROUP OF STUDENTS TAUGHT WITH FILMS (A) AND CONTROL GROUP OF STUDENTS TAUGHT BY DEMONSTRATIONS (B) AND THE EXPERIMENTAL CONSTANT FOR EACH FILM

Name of Film	Kind of Film	Difference in Mean Gains ($M_A - M_B$)*	Experimental Constant $\left(\frac{M_A - M_B}{P.E. - M_A - M_B} \right)$
Radioactive Substances.....	Sound	+0.7	+1.0
Liquid Air.....	Sound	-0.3	-0.4
Characteristics of Sound.....	Sound	+0.7	+0.7
Wizardry of Wireless.....	Silent	+1.0	+1.4
Electromagnetism.....	Silent	-5.2	-5.3
Revelations by X Rays.....	Silent	-0.3	-0.4

* The sign is plus when the difference is in favor of films and minus when in favor of demonstrations.

indicate an advantage in favor of the demonstrations over the silent films. However, the differences are too small to justify final conclusions.

The comparison of the lecture type of sound films with silent films identical or very similar in content indicated, as is shown in Table III, that the students taught with the silent films made higher scores than did the students taught with the sound films. The differences in favor of the silent films had experimental constants of 3.5 and 16.2 on the two divisions of the test. These differences are significant and indicate clearly the superiority of the printed caption over this type of sound film.

Interests.—In the interest examinations the percentages of students having been taught by each of the three methods who main-

tained their original interests, as indicated by the same choices on the initial and final tests, were as follows: demonstrations, 54.6; sound films, 59.4; and silent films, 60.3. The percentages of students indicating new interests stimulated by sound films, silent films, and demonstrations, as shown by new choices on the final test (considering only those items which were presented by different visual aids to the experimental and the control groups), were as follows: sound films, 27.4, compared with identical demonstrations, 22.2; silent films, 26.7, compared with identical demonstrations, 26.2.

TABLE III
DIFFERENCES IN MEAN SCORES MADE BY EXPERIMENTAL GROUP
OF STUDENTS TAUGHT WITH VERBAL-LECTURE TYPE OF SOUND
FILMS (A) AND CONTROL GROUP OF STUDENTS TAUGHT WITH
SILENT FILMS (B) AND THE EXPERIMENTAL CONSTANTS

Films Compared	Difference in Mean Scores ($M_A - M_B$) [*]	Experimental Constant $\left(\frac{M_A - M_B}{P.E. M_A - M_B} \right)$
Three sound films and three identical silent films.....	-0.5	-3.5
Two sound films and two related silent films.....	-1.8	-16.2

* The minus sign indicates that the higher score is in favor of silent films.

Current interest on the part of the students in a given activity relating to scientific things, as indicated by the degree of sustained attention in the presence of a predetermined distracting stimulus, was created by sound films, silent films and lecture demonstrations to the following relative extent: When watching sound films, 81.7 per cent of the students maintained attention; when watching silent films, 75.2 per cent of the students remained attentive; and, when watching lecture demonstrations, 54.6 per cent of the pupils maintained attention.

CONCLUSIONS

The experimental data compiled and analyzed in this study show the following results with respect to the comparative values of educational sound motion pictures for classroom use in teaching science at the junior-college level of instruction.

1. Educational sound films of the type in which the sound is a vital and realistic part of the picture are as effective as are identical lecture demonstrations in conveying specific information of a scientific nature to mature students.
2. Silent films similar to those used in this investigation appear to be less effective than are identical classroom demonstrations for developing specific knowledges on the part of junior-college students. The gains of the students taught by the demonstrations, however, were not sufficient to justify final conclusions and general applications.
3. When sound films of the lecture type, all explanations being given by an unseen speaker, are compared with identical silent films in which all explanations are given by printed captions, the sound films are less effective than are the silent films in conveying specific information.
4. In maintaining interests already possessed by the students, as expressed by them on an interest test, the sound films of the type used in the last half of this experiment (those in which the sound is a vital part of the picture) and the silent films used appear to be about equally effective and to have a slight advantage over similar lecture demonstrations.
5. In stimulating new interests on the part of junior-college students, the sound films, silent films, and lecture demonstrations, as used, are about equally effective, a small advantage in favor of the sound films being indicated.
6. In stimulating a present interest, as measured by the extent of sustained attention on the part of the students, sound films of the type used in the last part of the study are more effective than are the silent films or the demonstrations used.

INFERENTIAL DEDUCTIONS

The data secured in this study show a marked similarity in the effectiveness of the sound motion pictures, the silent motion pictures, and the lecture demonstrations used as teaching aids in developing the two outcomes of education measured. The failure of any one of these three kinds of instructional aids to show a marked superiority might seem to minimize the findings of this investigation.

However, this very condition is believed to constitute a significant part of the study. To a large extent, all factors affecting learning, except the variable factor studied, were highly similar in the case of both the experimental and the control groups. Also, the teaching aids compared with the sound films differed from the sound films chiefly in only one respect, namely, the association of sound with motion pictures in the films. To this extent, therefore, the investigation fulfilled its purpose—to determine, first, the educational values of the association of sound with motion pictures compared with the values of silent motion pictures and, second, the educational values of sound motion pictures compared with identical lecture demonstrations. The similarity of all conditions surrounding the experimental and the control groups, except the one variable factor which it was proposed to study, adds to the significance of the results obtained. Had some unevaluated factor persisted throughout the study, larger differences between the scores of the experimental and the control groups might have been obtained. Therefore, the conditions of the investigation and the results obtained warrant the following inferential deductions as to the educational values of sound motion pictures for regular classroom use in instructing mature students.

1. When a sound film is so produced that the sound is a vital part of the picture and adds to the reality of the scenes presented, such a sound film is highly valuable for classroom use in illustrating to the students things and personages impossible or highly expensive to bring into the classroom. Sound films of this kind seem to be as effective in conveying information and in developing thinking and reasoning abilities as similar demonstrations of the objects themselves. The sound film is to be considered as an aid in teaching and in no sense as a substitute for the personality of the instructor. In fact, to use sound films effectively requires a higher degree of teaching skill than is needed for the use of some other types of teaching aids.

2. The addition of a spoken lecture to a motion picture in the place of the printed captions is likely to detract from the value of the film in conveying information. In this connection the point may be emphasized that, when such a sound film is produced for classroom

use, a detailed knowledge of all the learning factors involved in the situation should be possessed and used. The effectiveness of the speaker's voice, of his enunciation, of the rapidity of his speaking, and the exact explanations and interpretations necessary must also be carefully determined for each film.

3. It is clear that films can be used effectively as a means of arousing interest preparatory to teaching. In this respect sound films are apparently more valuable than are silent films. The explanation of this fact is probably that the student is accustomed to sound films in the theater as an improved means of entertainment over the silent films. To stimulate interest, the educational sound film should be produced with a high degree of educational skill, and reproduction in the classroom must be characterized by the same technical excellence as is reproduction in the theater.

4. Sound films for classroom use constitute a new teaching device and a new educational problem. Continued and searching study must be given to the peculiar educational contributions which sound films have to make. Such investigation needs to follow along two parallel lines of study. One would have to do with the production of educational sound films; the other, with their most effective use in the classroom. The production of such films involves the closest possible co-operation between producers and educators. This co-operation will involve advice and experimentation in the choice of subjects, the content of the films, compiling the material, and editing the films. The study of films in the classroom will involve determining the exact contribution which comes from the association of sound with the pictures and the nature of the sound effects which are of most value. Further classroom investigation is also needed to determine at what age and intellectual levels different types of sound films are most valuable.

CLASSROOM DIFFICULTIES OF BEGINNING TEACHERS

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Every year many inexperienced teachers enter the educational system. Difficulties attend induction into any new field of action. In so far as preparatory agencies anticipate these difficulties, they may assist in effecting more rapid and adequate adjustment. A true insight into the difficulties encountered by beginning teachers may provide a basis on which to plan the improvement of training programs now in vogue. In the endeavor to discover what these difficulties are, it is logical to call in the aid of those who are in a position to detect their presence. The investigation herein reported is of this nature. An appeal was made to superintendents of schools to indicate the chief classroom difficulties encountered by beginning teachers under their supervision.

Briefly described, the procedure consisted, first, in the development of a list of difficulties encountered by the beginning teacher. The compilation was made by the investigators with the aid of a sampling of superintendents. These lists, after preliminary trial, were submitted to 372 superintendents in Minnesota who had previously indicated a willingness to co-operate in the study. Each respondent was asked to record on a seven-point scale the frequency with which the average beginning teacher encounters specified classroom difficulties. The directions were: "Please use the scale presented below to indicate the frequency with which the average beginning teacher encounters difficulties in the classroom. If there are other items which from your experience should be included, kindly list them and indicate the frequency in a similar manner."

The scale for indicating frequency with which difficulties are encountered by the beginning teacher was as follows:

1	2	3	4	5	6	7
Always	Almost invariably	Often	Occasionally	Rarely or seldom	Very in- frequently	Never

An illustration of the use of the scale was afforded, and provision was made for recording the frequency of each difficulty separately for teachers in seven subject-matter fields: (1) English, (2) mathematics, (3) social studies, (4) science, (5) languages, (6) vocational subjects, and (7) fine arts.

Usable replies were received from 119 superintendents in Minnesota. In an attempt to determine the extent to which the ratings of difficulties made by superintendents in Minnesota might agree or disagree with the ratings made by superintendents in other sections, the lists were submitted to a sampling of superintendents who were in attendance during the summer session of 1931 at the University of Michigan, the University of North Dakota, Northwestern University, Stanford University, and West Virginia University. Sixty-four replies were received from these sources.

The composite rating for all subject-matter fields, determined on the basis of the median rating for each of a list of forty-eight difficulties, led to the rankings given in Table I. Since the coefficient of correlation between the ranks given the difficulties by the superintendents of Minnesota and the ranks given by the superintendents in other sections was .92, only the order based on the former is recorded.

An analysis of the list of difficulties indicates that these may be rather exactly grouped into those due to (1) inadequate knowledge of the pupil, (2) inadequate command of the customary teaching procedures, (3) inadequate command of the more recent teaching procedures, (4) inability to adapt subject matter, (5) inadequate general and special scholarship, (6) inadequate command of the administrative functions of teaching, and (7) deficiencies in personality traits. It is observed, however, that the items attain an importance somewhat independent of the categories in which they may be logically placed.

Comparisons between the difficulties occupying positions in the highest quarter and those in the lowest quarter on the basis of rank

TABLE I

PHASES OF INSTRUCTIONAL RESPONSIBILITIES CAUSING DIFFICULTY
TO BEGINNING TEACHERS AND RANK OF EACH ITEM ACCORDING TO
FREQUENCY WITH WHICH REPORTED BY 119 SUPERINTENDENTS OF
SCHOOLS IN MINNESOTA

Item Causing Difficulty	Rank
Of most frequent occurrence:	
Remedial instruction.....	1
Use of test results.....	2.5
Diagnostic testing.....	2.5
Adaptation of subject matter to needs of the individual.....	5
Training in habits of study.....	5
Supervised or directed study.....	5
Discipline.....	7
Classroom management.....	8
Questioning.....	9
Motivation procedures.....	10
Assignment.....	11.5
Stimulating and utilizing student participation.....	11.5
Of intermediate occurrence:	
Planning instruction.....	14.5
Use of supplementary materials.....	14.5
Socialized recitation.....	14.5
Objective test as a learning device.....	14.5
Adaptation of subject matter to ability of class.....	20
Drill.....	20
Testing.....	20
Problem method.....	20
Project method.....	20
Individualized instruction (contract plan).....	20
Individualized instruction (other plans).....	20
Inadequate knowledge of pupil interests.....	25.5
Inadequate knowledge of pupil environment.....	25.5
Marking.....	25.5
Training in use of library.....	25.5
Inadequate knowledge of pupil's previous experiences.....	28.5
Visual instruction.....	28.5
Inadequate knowledge of pupil's mental ability.....	32
Inadequate knowledge of pupil's personal traits.....	32
Demonstration.....	32
Review.....	32
Project (individual).....	32
Deficient general scholarship.....	37
Adaptation of subject matter to needs of community.....	37

TABLE I—*Continued*

Item Causing Difficulty	Rank
Of least frequent occurrence:	
Use of textbook.....	37
Formal recitation.....	37
Deficiency in personality traits.....	37
Laboratory.....	40
Inadequate knowledge of pupil's previous record.....	41.5
Lack of interest in further professional study.....	41.5
Field trips.....	44
Use of radio in instruction.....	44
Lack of interest in teaching.....	44
Deficient scholarship in field of specialization.....	46
Inadequate knowledge of pupil's physical condition.....	47
Poor health.....	48

bring to attention the more significant differences. In the former list the difficulties are mainly those centering in the individual pupil as a unit. How can remedial instruction be given? How can test results and diagnostic measures be employed? Then come those perplexing problems involved in inculcating habits of study and giving direction to study activities. It is also to be observed that questions of discipline and classroom management loom large. Further emphasis is given to those factors involved in creating a situation conducive to learning. Common elements which on first examination are not particularly apparent appear to underlie these difficulties; proper motivation procedures may largely eliminate disciplinary difficulties, and training in proper habits of study may be closely related to good assignment techniques. Of the difficulties ranked in the lowest quarter, a few, such as the use of the field trip and the radio in instruction, appear in the lowest quarter possibly because of infrequent opportunity of occurrence; others relate to such established classroom procedures as the use of the textbook and the formal recitation. In the main, however, the difficulties in the lowest quarter center in the personality traits of the teacher, her professional interest, scholarship, and health. It is worthy of note that the last-mentioned factors are listed with relative infrequency by this group of superintendents.

The difficulties of intermediate rank arise largely through ineffi-

cient planning of instruction, failure to acquire a functional knowledge of the more recent innovations in teaching procedures, and lack of skill in employing teaching devices.

When teachers in the different subject-matter fields were compared with respect to the types of difficulties encountered, small differences in ratings were discernible, but none stood the test of statistical significance.

These findings point to the value of co-operative attacks on the problems involved in the instruction of prospective teachers. If exact and impartial observations can be secured from men in the field, defects in instructional programs may be brought into relief which otherwise might remain obscure.

JUNIOR HIGH SCHOOLS OF TEXAS

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Concomitant with the rapid expansion of educational opportunity for the adolescent youth of this country, occurred a definite trend toward the administrative reorganization of the secondary schools. One phase of the reorganization movement, the junior high school idea, received its initial impetus during the second decade of this century. Since that time the junior high school movement has spread rapidly in many sections of the country.

The Texas Educational Survey Commission, reporting in 1924, found very few reorganized secondary schools in the state.¹ The traditional four-year high school practically dominated the system. According to a report of the United States Office of Education, there were 704 separately organized junior high schools and 1,316 junior-senior high schools in the United States in 1924.² The progressive tendency in the reorganization of the traditional schools of San Antonio, Texas, was commented on by the Texas Educational Survey Commission.³ Indeed, by 1924, the junior high schools of that city had received national recognition.

The tardy development of the junior high school movement in Texas may be accounted for, in the main, by the fact that the elementary schools of the state are seven-year schools. Accidentalism, together with trial and error, is largely responsible for this type of organization. The seven-four plan of organization has been the most prevalent plan among the schools of the Association of Colleges and Secondary Schools of the Southern States.

Evidence of an increased interest in junior high schools in Texas

¹ C. H. Judd, *Secondary Education*, p. 12. Texas Educational Survey Report, Vol. III. Austin, Texas: Texas Educational Survey Commission, 1924.

² *Statistics of Public High Schools, 1927-1928*, p. 2. United States Office of Education Bulletin No. 35, 1929.

³ C. H. Judd, *op. cit.*, pp. 15-24.

is shown by data gathered by the State Department of Education. Available information for the year 1928-29 revealed that there were sixty-three declared junior high schools in the state. It should be mentioned, however, that almost half of these schools were located in seven of the large cities of the state. The reports of the year 1930-31 show that the movement has continued to gain ground. Eighty junior high schools, located in fifty-one different towns and cities, reported to the State Department of Education for that year.¹

It is the purpose of this article to indicate the trends in the administrative organization of the junior high schools of Texas. It is generally agreed that neither the external nor the internal administrative organization of a school system, of itself, guarantees effective functioning. Not all the schools which are called reorganized junior high schools, even though the name is justified by certain external administrative features, are able to qualify as properly functioning institutions. Curriculum practices in some schools, as evidenced in several specific reports, tend to substantiate this conclusion. Probably no other unit of the school system has been stereotyped so generously as has the junior high school. That the State Department of Education of Texas recognizes the perversion of the junior high school organization is shown by the fact that this agency has failed to place certain schools on the list of accredited junior high schools.

The State Department of Education has recently taken steps to promote the junior high school movement and to provide for progressive measures in accrediting the newly reorganized schools. Since the colleges of the state have agreed to accept twelve units from the senior high school for admission, the State Department has attempted to work out standards which in general may govern the junior high schools of the state. The following recommendations have been made by the accrediting division.

A junior high school shall consist of not fewer than two grades, including at least the first year of the traditional four-year high school and the last year of the traditional elementary school, organized and administered as a separate unit of the second system, having its own administrative head and corps of teachers, and characterized by flexible admission requirements, flexible promotion, provisions for exploration, guidance, and preview of subject matter,

¹ Unpublished data obtained from A. M. Blackman, chief supervisor of Division of High-School Supervision, State Department of Education of Texas.

and for articulation with the units above and below this organization. While this requirement concerning the grades to be included in a junior high school is very flexible, it is intended that such be the case during the present period of transition due to junior high school and junior-college movements, etc. An organization, however, including the sixth, seventh, and eighth grades is recommended for the eleven-grade system under average conditions.¹

The data presented in Table I indicate clearly a preference for the three-year junior high school. Fifty-nine schools, or 73.8 per cent of the total number of junior high schools in the state, have adopted the 5-3-3 plan of organization. Thirteen, or 16.3 per cent, report the

TABLE I
TYPES OF ORGANIZATION IN EIGHTY JUNIOR
HIGH SCHOOLS IN TEXAS

Type of Organization	Number of Schools
5-3-3.....	59
6-2-3.....	13
6-3-2.....	5
4-4-3.....	1
5-4-2.....	1
5-2-3.....	1
Total.....	80

6-2-3 type of organization. Five schools have elected the 6-3-2 plan. Two schools report four-year units, one including Grades V-VIII, inclusive; the other, Grades VI-IX, inclusive. One two-year junior high school includes Grades VI and VII. The last-mentioned type of organization is clearly outside the provisions set out by the State Department of Education. The table also reveals that, while the tendency is to follow the suggestion of the State Department by developing the three-year unit (including Grades VI, VII, and VIII), there is no generally accepted plan of reorganization—a lack of uniformity also found in other sections of the nation.

This study revealed that there is little correlation between the type of external organization of the junior high school and the population of the city or town. One of the smallest towns, Atlanta, which claims a population of 1,685, has adopted the 5-3-3 plan of

¹ *Texas High Schools: Directory of Classified and Affiliated High Schools*, p. 58. Bulletin No. 290, Vol. VII, No. 7. Austin, Texas: State Department of Education, 1931.

organization. On the other hand, Port Arthur, with a population of 50,902, has organized its school system on the 6-2-3 plan. The schools of Fort Worth, Houston, and San Antonio, with but two exceptions, are organized on the 5-3-3 plan.

It is evident from this description that the undivided five- or six-year type of junior-senior organization has not made its appearance in Texas. While the undivided plan of organization is becoming increasingly popular in many sections of the country, particularly among small school systems, it has usually followed the evolution of the separate-unit plan. Data from seventy-six junior high schools in Texas reveal that they are organized as units distinctly separate from the senior high schools. Four junior high schools report that the two schools are organized as one unit for administrative purposes. Sound administrative practice has tended to advise against the organization of separate units in cities with populations under ten thousand. Indeed, some administrators have been inclined to require a population considerably above ten thousand before advising separate organization of the junior and senior high schools. Among the towns and cities included in this study, 29, or 56.9 per cent of the total number, have populations between 1,500 and 9,587. It would appear, therefore, that special encouragement should be given to smaller communities to reorganize their schools into five- or six-year secondary-school units. Fifty-two per cent of the four-year high schools in Texas enrol one hundred or fewer pupils. The consolidation of school districts, together with the organization of five- and six-year high schools, would offer distinct opportunity for the improvement of the traditional school systems. Sixty-two of the junior high schools in the state are housed in separate buildings. Fourteen are housed with the senior high schools. Only four schools have faculties in common with the senior high school, and in most instances separate libraries and laboratories are used.

The median enrolment in 72 Texas junior high schools in 1930-31 was 483.7. The two largest schools reported enrolments ranging between 1,300 and 1,350. Five of the smallest schools had enrolments ranging from 100 to 150. Twenty-one schools, or slightly more than one-fourth of the total number of junior high schools, reported enrolments of fewer than 300 pupils. Thirteen schools had enrolments exceeding 1,000.

The teaching staffs vary with the enrolments of the schools. Five of the smallest schools had only two teachers each in 1930-31, while one junior high school had fifty-five teachers on its staff. The median number of teachers to a junior high school was seventeen. Ten of the largest schools reported that their teaching staffs numbered from thirty-seven to fifty-five. Reports obtained from the schools gave information on the academic training of 1,525 teachers. Of this number, 81, or 5.3 per cent, possessed the Master's degree. The Bachelor's degree was held by 960, or 63.0 per cent, while 484, or 31.7 per cent, had not completed their undergraduate academic work.

TABLE II
LENGTH OF CLASS PERIODS IN SEVENTY-SIX JUNIOR
HIGH SCHOOLS IN TEXAS

Number of Minutes in Class Period	Number of Schools
40.....	1
45.....	26
50.....	11
55.....	12
60.....	25
65.....	1
Total.....	76

Current practices among seventy-six junior high schools of the state with respect to the length of the school day reveal considerable variation. Eight schools have a school day of five periods, while at the other extreme fifteen schools are operating a school day of eight periods. Thirty-two schools, or 42 per cent of the total, have a school day of six periods, and twenty-one schools, or 28 per cent of the total, have adopted the seven-period day.

Variation in the length of class periods among the junior high schools of the state is shown in Table II. The data reveal that slightly more than one-third of the total number of schools are using the forty-five-minute class period. That there is a trend toward the longer class period is shown by the fact that twenty-five schools have adopted the sixty-minute class period.

A majority of the junior high schools make provision for supervising the pupils' study. No standard practice is followed with re-

spect to the amount of time given to the supervision of study. Usually the class period is used in fractional part for study under direction.

The standardizing policies of the State Department of Education of Texas have been recited in this article and attention directed to actual practices in the organization and administration of junior high schools in the state. For purposes of comparison, a brief summary is included from Spaulding's report on trends in the organization and administration of junior high schools throughout the nation.

The typical junior high school, as it is revealed in the 367 check-list replies from schools including junior high school grades, is a three-year school comprising Grades VII, VIII, and IX and enrolling slightly under four hundred pupils. It has been in existence since 1926; before that year the school system of which it is now a part was organized on the 8-4 basis. The junior high school is housed in a building erected specifically for its use. Senior high school grades are sometimes housed in the same building, but the junior and senior high school grades are under separate administrations. . . .

Seven class periods, each approximately forty-five minutes in length, make up the usual school day.¹

¹ F. T. Spaulding, "Is the Junior High School Organization Superior to the Conventional Organization? A Report on Nation-wide Practice," *Proceedings of the Sixteenth Annual Meeting of the Department of Secondary-School Principals*, pp. 212-14. Bulletin of the Department of Secondary-School Principals, No. 40. Cicero, Illinois: Department of Secondary-School Principals of the National Education Association (H. V. Church, Secretary), 1932.

RECENT DEVELOPMENTS IN MEXICAN SECONDARY EDUCATION

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New aims of secondary education.—Before 1925 public secondary education in Mexico usually consisted in a five-year period of training between the six-year elementary school and the university. This training was distinctly a university-preparatory type of education. In 1925 presidential decrees were issued which separated the period of education between the elementary school and the university into two cycles: a secondary cycle of three years, for which completion of the elementary school is prerequisite, and a preparatory cycle, for which completion of the secondary cycle is considered prerequisite.¹ The secondary cycle does not aim to give a university-preparatory education in the same strict sense as did the earlier preparatory school. Rather the aims are essentially the same as the seven cardinal principles of secondary education suggested in 1918 by our own Commission on the Reorganization of Secondary Education: health, command of the fundamental processes, worthy home membership, vocation, citizenship, worthy use of leisure, and ethical character.²

To foster these newer aims of secondary education in Mexico, a separate division of secondary education was established by decree in December, 1927, within the Department of Public Education. This division is charged with the technical and administrative direction of the federal secondary schools, the inspection of private secondary schools, and the supervision and the control of certain activities of the states in the field of secondary education.³

¹ *Memoria de los trabajos realizados por el departamento de enseñanza secundaria durante la administración del C. presidente Plutarco Elias Calles*, p. 19. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XX, No. 2, 1928.

² *Ibid.*, pp. 11-13.

³ *Ibid.*, p. 19. See also Moisés Sáenz, "Mexico," *Educational Yearbook of the International Institute of Teachers College*, 1927, p. 278. Edited by I. L. Kandel. New York: Teachers College, Columbia University, 1928.

Expenditures.—Both state and federal governments are important in the support of secondary education in Mexico. A comparison of the expenditures made by the two agencies for education at this level can be made from Table I. During the whole period 1925-27 the two public agencies contributed roughly equal amounts for the support of secondary and preparatory education. It should be noted that the total amount contributed for this purpose steadily increased during the period indicated and that the proportion of the total amount which was contributed by the federal government also increased

TABLE I
FINANCIAL SUPPORT GIVEN SECONDARY AND PREPARATORY
SCHOOLS BY THE FEDERAL GOVERNMENT AND BY THE
STATES OF MEXICO IN 1925-27*

YEAR	NUMBER OF PESOS SPENT†		
	Federal Government	State Governments	Total
1925.....	676,981.00	963,894.40	1,640,875.40
1926.....	854,739.30	1,002,570.94	1,857,310.24
1927.....	1,261,806.00	898,354.47	2,160,160.47
Total.....	2,793,526.30	2,864,819.81	5,658,346.11

* Data taken from *Noticia estadística sobre la educación pública en México correspondiente al año de 1927*, p. 665. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, 1929.

† One peso is normally equivalent to fifty cents in the currency of the United States.

steadily. Although the period of time here considered is too short to justify sweeping conclusions, the data suggest that the federal government is becoming increasingly active in secondary education, whereas the activity of the states is approaching a standstill.

Number of secondary schools and enrolments.—The number of schools offering instruction of secondary level and the number of regular and irregular students enrolled in each of the different scholastic years are presented in Tables II and III. Data for private schools are here included with those for publicly supported schools. Regular students are those whose courses consist entirely of subjects intended for a particular school year. Irregular students are those whose courses overlap two or more scholastic years.

In 1927 nearly one-fourth of the schools of secondary or prepara-

tory level and approximately half the pupils enrolled were in the Federal District, that is, in the capital city and its environs, an area

TABLE II

NUMBER OF REGULAR STUDENTS ENROLLED IN 1927 IN SCHOOLS OFFERING SECONDARY AND PREPARATORY EDUCATION IN STATES AND TERRITORIES OF MEXICO CLASSIFIED ACCORDING TO SCHOLASTIC YEAR*

STATE OR TERRITORY	NUMBER OF SCHOOLS	FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR		FIFTH YEAR		SIXTH YEAR		TOTAL		
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Aguascalientes.	1	64	0	46	0	14	0	19	0	18	0	0	0	0	161	0
Baja California Norte.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baja California Sur.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Campeche.	2	41	0	27	6	28	0	19	0	12	0	0	0	0	127	6
Chiapas†.	4	80	45	11	0	14	0	15	0	3	1	0	0	0	123	46
Chihuahua.	1	68	59	48	19	27	22	13	10	17	20	0	0	0	173	130
Coahuila.	2	130	1	12	0	14	0	5	0	0	0	0	0	0	161	1
Colima.	1	29	10	15	0	4	1	4	8	0	0	0	0	0	52	28
Federal Dis- trict.	20	1,684	775	690	280	342	217	94	15	89	21	22	12	2,921	1,320	
Durango.	1	24	0	10	0	11	0	3	0	4	0	0	0	0	52	0
Guanajuato.	3	122	62	62	15	23	1	11	0	33	0	0	0	0	251	78
Guerrero.	1	12	0	0	0	0	0	0	0	0	0	0	0	0	12	0
Hidalgo.	3	59	22	31	14	19	0	0	0	0	0	0	0	0	100	45
Jalisco.	4	270	199	130	90	64	58	26	17	30	0	0	0	0	507	447
Méjico.	1	82	2	35	1	28	4	0	0	0	0	0	0	0	145	7
Michoacán.	3	145	11	94	4	80	7	45	2	41	1	0	0	0	405	25
Morelos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nayarit.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nuevo León.	2	204	41	108	29	73	12	63	12	55	5	5	0	0	502	99
Oaxaca.	1	102	4	80	2	60	1	30	0	26	0	20	0	0	318	7
Puebla.	5	198	31	58	34	50	21	27	21	25	22	0	19	0	367	148
Querétaro.	1	21	0	8	0	3	1	3	0	5	0	0	0	0	40	1
Quintana Roo.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Luis Potosí.	2	88	29	27	9	18	4	24	3	6	1	0	0	0	163	46
Sinaloa.	2	100	40	10	14	9	15	0	1	9	0	0	0	0	137	70
Sonora.	1	5	0	6	0	2	0	0	0	0	0	0	0	0	13	0
Tabasco.	1	21	11	0	0	0	0	0	0	0	0	0	0	0	21	11
Tamaulipas.	4	94	97	30	38	20	20	31	24	10	18	0	0	0	194	197
Tlaxcala.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Veracruz†.	5	181	68	133	26	47	11	50	3	21	4	0	0	0	432	112
Yucatán.	2	175	6	0	5	0	0	0	0	0	0	0	0	0	180	6
Zacatecas.	2	26	16	0	4	7	4	4	0	0	0	0	0	0	37	24
Total....	75	4,025	1,538	1,689	591	970	408	486	157	391	123	42	37	7,603	2,854	

* Data adapted from *Noticia estadística sobre la educación pública en México correspondiente al año de 1927*, pp. 595-613. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, 1929.

† No data for one of the four schools.

‡ No data for two of the five schools.

having roughly 7 per cent of the population of the entire republic. Half of the remaining student population was in six states (Guanajuato, Jalisco, Michoacán, Nuevo León, Puebla, and Veracruz), the populations of which comprise 35-40 per cent of the total population of the republic. At the other extreme were three states (Morelos, Nayarit, and Tlaxcala) and three territories (Baja California Norte,

Baja California Sur, and Quintana Roo) which had no schools offering secondary education. In 1930 the combined population of these

TABLE III

NUMBER OF IRREGULAR STUDENTS ENROLLED IN 1927 IN SCHOOLS OFFERING
SECONDARY AND PREPARATORY EDUCATION IN STATES AND TERRITORIES
OF MEXICO CLASSIFIED ACCORDING TO SCHOLASTIC YEAR

STATE OR TERRITORY	TWO OF FIRST THREE YEARS		THIRD AND FOURTH YEARS		THREE OF FIRST FOUR YEARS		OTHER COM- BINATIONS		TOTAL	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Aguascalientes.....	3	0	2	0	0	0	2	0	7	0
Baja California Norte.....	0	0	0	0	0	0	0	0	0	0
Baja California Sur.....	0	0	0	0	0	0	0	0	0	0
Campeche.....	0	0	0	0	0	0	0	0	0	0
Chiapas.....	36	13	4	0	13	11	10	1	63	25
Chihuahua.....	0	0	0	0	0	0	0	0	0	0
Coahuila.....	52	0	0	0	81	1	39	0	172	1
Colima.....	14	25	2	5	3	6	7	1	26	37
Federal District.....	1,024	798	141	0	225	82	1,135	358	2,525	1,238
Durango.....	25	0	4	0	0	0	70	10	99	10
Guanajuato.....	93	35	25	1	16	0	19	1	153	37
Guerrero.....	16	0	3	0	0	0	0	0	19	0
Hidalgo.....	42	18	23	12	0	0	5	7	70	37
Jalisco.....	200	79	50	21	7	0	80	10	343	110
Méjico.....	27	10	30	4	0	0	30	0	96	14
Michoacán.....	35	2	19	2	5	0	21	0	80	4
Morelos.....	0	0	0	0	0	0	0	0	0	0
Nayarit.....	0	0	0	0	0	0	0	0	0	0
Nuevo León.....	44	15	12	3	3	1	8	3	67	22
Oaxaca.....	0	0	0	0	0	0	0	0	0	0
Puebla.....	88	11	32	0	16	1	54	3	190	15
Querétaro.....	16	1	8	0	6	0	29	1	59	2
Quintana Roo.....	0	0	0	0	0	0	0	0	0	0
San Luis Potosí.....	60	12	21	0	0	0	7	27	88	39
Sinaloa.....	38	10	17	11	0	0	9	7	64	28
Sonora.....	0	0	0	0	0	0	0	0	0	0
Tabasco.....	0	0	0	0	0	0	0	0	0	0
Tamaulipas.....	10	11	1	0	0	0	4	1	15	12
Tlaxcala.....	0	0	0	0	0	0	0	0	0	0
Veracruz.....	42	11	14	2	1	0	21	6	78	19
Yucatán.....	162	3	0	0	0	0	0	0	162	3
Zacatecas.....	25	8	4	0	0	0	51	6	80	14
Total.....	2,052	1,062	427	61	376	102	1,601	442	4,456	1,667

states and territories was approximately 600,000, or 3-4 per cent of the total for the republic. It is clear that the distribution of secondary and preparatory schools in Mexico in 1927 was extremely un-

even; the Federal District headed the list with a number of secondary schools which in the United States would be considered quite inadequate, while some states and territories were wholly without educational offerings at the secondary level. A few pupils from these last-named states or territories no doubt attended secondary schools in other states, but the number must have been small.

Certain further observations can be made from Tables II and III. If the data for 1927 are accepted as typical, the ratio of boys to girls in Mexican secondary schools is entirely different from that in this country. The totals in the last two columns in each of the two tables indicate that nearly three-fourths of the pupils are boys. Moreover, in each school year there were more boys than girls among the students. In every political division having a secondary or preparatory school, with two exceptions, the boys outnumber the girls among both regular and irregular students. The two exceptions are in Tamaulipas among the regular students and in Colima among the irregular students. It is apparent, then, that Mexicans consider secondary and preparatory education more essential for boys than for girls; for girls such education is largely a luxury.

Table II also indicates that the enrolment in the first three years greatly exceeds the enrolment in the last three years. A detailed comparison of the totals for successive years gives some indication of the student mortality from year to year. For a more adequate understanding of mortality, the number of irregular students must be taken into account. Thus, the regular students for the first three years together with the irregular students whose courses fall entirely within the work of the first three years constitute 12,335 of the total of 16,580, or 74.4 per cent of all students in these schools. Such factors as the expansion of the secondary school and the failure and repetition of courses explain part of the large difference in enrolment between the early and the later years of the six years considered, but dropping out is undoubtedly a factor of great importance.

Unfortunately, data are not available showing the proportion of children in the whole republic who enter secondary schools after completing the elementary schools, but the data concerning the Federal District which are presented in Table IV have a significant bearing on this point. A rapid increase is shown in the number of

children finishing the elementary school between 1923 and 1925, followed by a more gradual increase up to 1927 and another marked increase between 1927 and 1928. The numbers of elementary-school graduates who register in the federal secondary schools in the year after graduation show similar changes. There is a difference of 11.7 between the percentage of graduates entering secondary schools in 1923 and the corresponding percentage in 1926. From 1926 to 1928, however, the proportion entering secondary schools remained practically constant.

TABLE IV

PUPILS GRADUATING FROM SIX-YEAR ELEMENTARY SCHOOLS OF THE
FEDERAL DISTRICT WHO ENTERED THE FEDERAL SECONDARY
SCHOOLS IN THE YEAR FOLLOWING GRADUATION*

YEAR	NUMBER OF PUPILS FINISHING ELEMENTARY SCHOOL	GRADUATES ENTERING SECONDARY SCHOOLS IN SUCCEEDING YEAR	
		Number	Per Cent
1923.....	3,990	839	27.2
1925.....	6,256	2,181	34.9
1926.....	6,828	2,658	38.9
1927.....	7,214	2,774	38.4
1928.....	8,906	3,473	38.9

* Data adapted from *Memoria de los trabajos realizados por el departamento de enseñanza secundaria durante la administración del C. presidente Plutarco Elías Calles*, pp. 26, 78. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XX, No. 2, 1928.

The enrolments in the secondary schools in the Federal District have apparently increased as rapidly as facilities would permit. In 1923 there was in the district only one federal school offering education of secondary level. In the years immediately following, several federal secondary schools were established, frequently occupying quarters originally designed for other purposes. The total capacity of these schools has, however, been inadequate to meet the needs of those desiring secondary education. The proportion of elementary-school graduates entering the federal secondary schools has reached 38.9 per cent. This figure has been reached only by great overcrowding at the expense of accepted principles of pedagogy, and yet it has been necessary to turn away at least 25 per cent of those applying for entrance.¹

¹ *Memoria de los trabajos realizados por el departamento de enseñanza secundaria durante la administración del C. presidente Plutarco Elías Calles*, pp. 26-27. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XX, No. 2, 1928.

The total enrolments in the federal secondary schools of the Federal District in 1926 and 1927 were 3,860 and 4,729, respectively.¹ In 1928 and 1929 the total enrolments were 5,889 and 5,543, respectively.² Because it has not been possible to expand facilities as rapidly as applications for entrance have increased, the secretary of public education decided to make entrance more selective—to admit only applicants with superior preparation—and thus to reduce somewhat the overcrowding. This policy accounts in part for the reduction of enrolment in the federal secondary schools between 1928 and 1929. The reduction may also be explained in part by the gradual development of another movement in Mexican secondary education, namely, the incorporation into the federal system of certain private secondary schools. The incorporation of such schools, in some of the states as well as in the Federal District, tends to reduce the pressure on the federal schools. However, a detailed consideration of these private schools does not come within the scope of this article.

Curriculums.—The subjects most frequently taught in Mexican secondary schools and the time distribution among those subjects are shown in Table V. Mexico gives considerable attention to a study of the national language. Somewhat more attention seems to be devoted to English than to French, although, when consideration is given both to the number of hours a week and to the number of schools reporting, the difference is not great. The proximity of Mexico to the United States and the increase in cultural contacts between the two countries are no doubt the basic reasons for the study of English in Mexican schools. The prominence of French in the Latin culture of Europe and the close connection between Latin America and that culture explains the interest in French. Mathematics, like the languages, occupies a prominent place in all three years of the secondary school. Interest in physical development is reflected in the prominent place occupied by games and sport. The sciences, both physical and social, are studied more extensively during the last year of secondary education than during the two pre-

¹ *Loc. cit.*

² *Memoria que indica el estado que guarda el ramo de educación pública el 31 de Agosto de 1929*, pp. 196-97. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XXII, No. 4, 1929.

ceding years combined. The science material taught in the different years of the secondary school is not greatly different from what one

TABLE V

SUBJECTS MOST FREQUENTLY TAUGHT IN THE THREE-YEAR CYCLE OF THE SECONDARY SCHOOLS, AVERAGE NUMBER OF HOURS A WEEK DEVOTED TO EACH SUBJECT, AND NUMBER OF SCHOOLS REPORTING EACH SUBJECT*

SUBJECT	FIRST YEAR		SECOND YEAR		THIRD YEAR	
	Average Number of Class Hours a Week	Number of Schools Reporting	Average Number of Class Hours a Week	Number of Schools Reporting	Average Number of Class Hours a Week	Number of Schools Reporting
Spanish.....	6.08	48	4.00	39	3.14	17
Games and sport.....	4.41	31	3.44	25	3.51	21
English.....	4.10	34	5.20	24	3.48	14
Mathematics.....	4.02	41	4.33	36	3.52	27
French.....	3.34	29	3.45	27	4.36	10
Botany.....	3.30	35	0.00	0	0.00	0
Geography.....	3.15	38	3.31	28	0.00	0
Drawing.....	3.10	30	2.57	20	0.00	0
Vocational subjects.....	2.52	15	0.00	0	0.00	0
Modeling.....	2.10	10	0.00	0	0.00	0
Singing.....	1.52	11	1.30	9	1.30	11
Physics.....	0.00	0	3.43	28	4.34	13
Zoölogy.....	0.00	0	3.11	26	0.00	0
Mexican history.....	0.00	0	0.00	0	4.42	16
Chemistry.....	0.00	0	0.00	0	4.08	24
Anatomy and physiology.....	0.00	0	0.00	0	3.28	29
General history.....	0.00	0	0.00	0	2.45	9
Civics.....	0.00	0	0.00	0	2.17	20

* Data taken from *Asamblea general de estudio de problemas de educación secundaria y preparatoria* (November, 1928), pp. 43-44. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, 1930.

might expect to find in secondary schools in the United States. The fact that singing finds a place in the curriculum during all three years is of interest, although the number of schools reporting this subject is not large.¹

After completing the three-year secondary school already de-

¹ A more comprehensive treatment of the curriculum is given in Cameron Duncan Ebaugh, *The National System of Education in Mexico*, pp. 80-95. Johns Hopkins University Studies in Education, No. 16. Baltimore: Johns Hopkins Press, 1931. A very detailed treatment of particular subjects is also available. Curriculums in Spanish language and literature, mathematics, physics, chemistry, botany, geography, national history, and some aspects of art are given in *Programas detallados de las materias de primer ciclo de educación secundaria*, pp. 7-287. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XIX, No. 14, 1928.

scribed and before entering the university, the student in Mexico attends a preparatory school. In Mexico City, where perhaps the most outstanding preparatory school is located, the school is in reality considered a part of the National University.¹ In each of three fields the university grants a Bachelor's degree upon the completion of a three-year course beyond the secondary school. These fields are: letters and social science, biological science, and physical and mathematical science. The first is considered preparatory for a career in law and social science; the second, for medicine; and the third, for architecture, civil engineering, mining engineering, and petroleum engineering. Certificates are granted in certain semi-professional courses upon the completion of a course of study shorter than the three-year course indicated. These fields include certain branches of engineering (mechanical, electrical, topographical, chemical, etc.), chemistry and pharmaceutical chemistry, and dentistry, each comprising a two-year course, and pharmacy comprising a one-year course.² These provisions with reference to the granting of degrees and certificates represent comparatively recent changes but govern in general students entering the National Preparatory School in 1929. Tables VI and VII, respectively, indicate in detail the programs of studies leading to the Bachelor's degree and to the semi-professional certifications.

Organization of Mexican educational system.—A somewhat clearer understanding of the place of secondary education and of the subsequent preparatory course in the Mexican system of education may be gained from Figure 1. The figure indicates the six years of elementary training required for entrance into the secondary school and for entrance into certain technical and commercial schools. Some technical and commercial courses are offered in schools of lower qualifications than those here described, but the schools based on six years of elementary training represent a more substantial

¹ Moisés Sáenz, "Mexico," *Educational Yearbook of the International Institute of Teachers College*, 1927, pp. 278-79. Edited by I. L. Kandel. New York: Teachers College, Columbia University, 1928.

² *Memoria que indica el estado que guarda el ramo de educación pública el 31 de Agosto de 1929*, pp. 647-55. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XXII, No. 4, 1929. Compare also Cameron Duncan Ebaugh, *op. cit.*, p. 102.

TABLE VI

PROGRAM OF STUDIES OF THE NATIONAL PREPARATORY SCHOOL LEADING TO THE BACHELOR'S DEGREE FOR EACH OF THE THREE FIELDS IN WHICH THE DEGREE IS GRANTED AND NUMBER OF CLASS HOURS A WEEK GIVEN EACH SUBJECT*

SUBJECT	LETTERS AND SOCIAL SCIENCE				BIOLOGICAL SCIENCE				PHYSICAL AND MATHEMATICAL SCIENCE			
	Year				Year				Year			
	1	2	3	Total	1	2	3	Total	1	2	3	Total
Accountancy.....	3†			1½								
Biology.....	2			2				3	3		2	2
Botany.....							3		3			3‡
Chemistry:												
General.....	4½			4½			4½		4½			5½§
For medical apprenticeship.....							3	3				
Cosmography.....	3†			1½	3†			1½			2	2
Drawing:												
Constructive.....									3		2	5
Imitative.....							2	2	4		2	
English or French.....	6	3		9	3	3	3	9	3	3	3	9
Ethics.....			3	3			3¶	3¶				
Geography:												
Mexican.....	3			3	3			3	3			3
Economic and social.....		3	3				3¶	3¶			3‡	3‡
Physical.....											3‡	3‡
Greek-Latin etymology.....						3†		1½				
History:												
General.....	3	3	3	9	3	3		6	3	3		6
Contemporary American.....		3	3									
Mexican.....	3	3	3	9		3	3	6	3	3		6
Latin.....		3	3	6								
Literature:												
General.....		3	3				3¶	3¶			3‡	3‡
Mexican and Latin American.....			3	3								
Logic.....		3		3		3		3		3		3
Mathematics:											3‡	3‡
Algebra, geometry, trigonometry.....									6			6
Analytical geometry and calculus.....											3	3
Descriptive geometry.....											3	3
Graphic representation.....								3				
Completion course.....											3	3

* Data adapted from *Memoria que indica el estado que guarda el ramo de educación pública el 31 de Agosto de 1929*, pp. 647-52. Mexico, D.F.: *Publicaciones de la secretaría de educación pública*, Vol. XXII, No. 4, 1929.

† For one semester only.

‡ Two of these subjects are to be elected by the student, except architects who must take general literature, psychology, and logic.

§ Including mineralogy.

|| English, French, or German.

¶ Two of these subjects are to be elected by the student.

TABLE VI—Continued

SUBJECT	LETTERS AND SOCIAL SCIENCE				BIOLOGICAL SCIENCE				PHYSICAL AND MATHEMATICAL SCIENCE			
	Year				Year				Year			
	1	2	3	Total	1	2	3	Total	1	2	3	Total
Paleontology (human).....								31	31			
Philosophy (history of).....		2	2									
Physical education and sport.....	3	3	3	9	3	3	3	9	3	3	3	9
Physics:												
General.....	4½			4½	4½			4½		5½		5½
For medical apprenticeship.....					3		3					
Psychology.....	3	3	3		3	3	3			3½	3½	
Singing.....	1	1	1	3	1	1	1	3	1	1	1	3
Spanish.....	3		3	3				3	3			3
Zoölogy.....					3		3					
Total.....	29½	28½	30	88	29½	28½	30	88	30	29½	30½	90

undertaking and are coming to be regarded as secondary schools. Prospective elementary-school teachers may enter a five-year normal school after having completed six years of elementary education, or they may pursue a three-year course of training in the Primary Normal School after having completed the three-year secondary school. The figure shows the continuing relation of the secondary school with the preparatory school and university. The position of the Superior Normal School, which trains teachers for secondary schools, is similarly indicated. It might be noted in passing that the course in the federal rural schools is commonly four years in length, corresponding roughly to the first four years of the regular elementary school and that, after completing this course, promising individuals may enter the two-year course offered in rural normal schools to prepare for teaching in the federal rural schools. While the figure might give the impression that the students in rural normal schools are children, they are commonly mature persons who in remote communities have perhaps entered school late and attended only intermittently.

Summary.—Important changes in the aims of secondary education have taken place in Mexico within the past few years. Instead

of operating with the sole aim of preparing for a specialized line of study in the university, secondary education now aims to provide a

TABLE VII
PROGRAM OF STUDIES AT THE NATIONAL PREPARATORY SCHOOL
LEADING TO CERTAIN PROFESSIONAL CERTIFICATES*

SUBJECT	ENGINEER (MECHANICAL, ELECTRICAL, TOPOGRAPHICAL, CHEMICAL, METALLURGICAL, FORESTRY, ASSAYIST)			CHEMIST AND PHARMACEUTICAL CHEMIST			DENTIST			PHARMACIST	
	Year			Year			Year				
	1	2	Total	1	2	Total	1	2	Total		
Biology.....				3	3		3	3		...	
Botany.....				3	3		3	3		3	
Chemistry.....	5½†	5½†		4½	4½		4½	4½		4½	
Cosmography.....	2	2									
Drawing:											
Constructive.....	3	3									
Imitative.....							3	3		3	
English or French.....	6‡	3‡	9	6	3§	9	6	3	9	3	
Etymology.....					1½			3§	1½		
Geography (economic or social).....				3	3		3	3		...	
History:											
General.....					3	3	3	3	6	...	
Mexican.....	3	3			3	3	3	3	6	...	
Mathematics:											
Algebra, geometry, trigonometry.....	6	6		3		3				...	
Calculus.....	3	3			3	3				3	
Descriptive geometry.....	3	3									
Physical education and sport.....	3	3	6	3	3	6	3	3	6	3	
Physics.....	5½	5½	4½				4½	4½		4½	
Singing.....	1	1	2	1	1	2	1	1	2	1	
Spanish.....	3	3		3		3	3		3	3	
Zoölogy.....				3		3		3	3	3	
Total.....	25	20	54	26½	28	54½	29½	28	57½	28	

* Data adapted from *Memoria que indica el estado que guarda el ramo de educación pública el 31 de Agosto de 1929*, pp. 652-55. Mexico, D.F.: Publicaciones de la secretaría de educación pública. Vol. XXII, No. 4, 1929.

† Including mineralogy.

‡ English, French, or German.

§ For one semester only.

|| Including graphic representation.

unit of general education fitting into an organic system to train for a full, rich, cultural life for all who attend secondary schools, as well

as to offer a background for preparatory training for those who expect later to specialize in university study. This change has been commented on at some length by Sáenz, Ebaugh, and others and need not be elaborated here. It might merely be noted that the organization of a separate division of secondary education in the Department of Public Education is a reflection of the new aim in

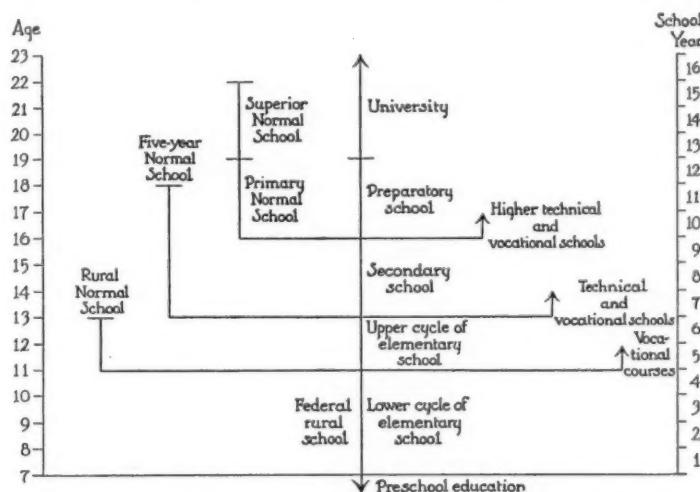


FIG. 1.—Structure of the Mexican school system. (The accuracy of this figure was checked by Dr. Manuel Barranco, director of the division of secondary education in the Department of Public Education, Mexico City.)

secondary education. The overcrowding of the available schools and the rapid filling-up of any new space provided are indicative of the appeal of the school of the newer type. The recent expansion of the concept of secondary education in Mexico suggests that Mexico has accepted the idea of the extensive, cosmopolitan type of secondary school, comparable to that of the United States, rather than the idea of separate types of parallel secondary schools for the performance of somewhat different functions, which prevails in Germany. The fact that the technical and commercial schools which are based on six

years of elementary education are coming to be regarded as secondary schools bears out the foregoing statement. It is, of course, apparent that at the present time the secondary schools of Mexico reach a very small part of the population of appropriate ages. This condition is to be expected in a country in which the percentage of illiteracy is high (approximately 65 per cent in 1921). After a person has learned to read, a considerable gap still remains before he has the background necessary to enable him to enter a secondary school. The recent progress made in secondary education in Mexico, however, augurs well for the future.

Educational Writings

REVIEWS AND BOOK NOTES

Common sense in psychiatry.—A considerable literature has developed during the past decade or so concerning problem children, the psychology of behavior problems, and delinquent children. An addition to this literature has appeared from the pen of a well-known psychiatrist.¹ The book is intended to help parents, teachers, nurses, and camp directors and counselors. As such a book of help, it certainly merits attention, for there are few teachers, parents, or others in charge of children who would not profit from reading this book. The author has paid most attention to that period known as adolescence, himself recognizing that this period is not clear cut and distinct.

In eleven somewhat overlapping chapters the author gives us first a discussion of adolescence and then treats adjustment difficulties under the classifications: physical development; maturing sex drives; intellectual abilities and disabilities; the total personality; education; undesirable habits and traits; delinquency and neuroses; and special environments comprising the school, the home, and industry. The book closes with brief discussions of education, as the author sees it, and of parents, including adoptive parents.

The book is rich in illustrative material, more than one hundred cases being described in more or less detail. It is true that many of the cases could have been shifted from one chapter to another without greatly affecting either the argument of the chapter or the value of the illustrations. Many of the presentations are far from satisfying. One wonders what the outcomes were in such cases as those of Marguerite (pp. 118-19), of Celia (p. 165), and of Walter (pp. 179-80). One becomes extremely curious to know what was done in such cases as those of Milton (p. 158), of Arthur (pp. 171-72), and of Ruth (pp. 34-35). Undoubtedly a large number of the cases were intended only to illustrate the difficulties. Nevertheless, it seems legitimate to suggest that for practical value case histories ought to present not only the symptoms and contributing factors, where known, but also the treatment and the outcome.

The chapter on problems of special environments is largely repetitious. Educational environments provide the majority of cases treated in this chapter, and these problems have been dealt with earlier in the book. The chapter on intel-

¹ Douglas A. Thom, *Normal Youth and Its Everyday Problems*. New York: D. Appleton & Co., 1932. Pp. xvi+368. \$2.25.

lectual abilities and disabilities seems to the reviewer to be the most important and the most befuddling to the lay reader. Thus the statement that "a child may attain a high 'I.Q.' which would lead one to believe that he was quite superior, whereas careful study of the whole test might reveal that this high numerical rating was attained because this particular child had a superior memory while his judgment and reasoning were only average" (pp. 75-76) is sure to be misinterpreted by most readers. A great deal might be said on this problem, but suffice it to say here that age scales are not instruments for interpreting the status of various faculties but the means of obtaining an index of some general factor. Binet himself recognized this and considered that even in the repetition of digits, judgment functioned. While the reviewer regards Spearman's criticism of the sampling theory (C. Spearman, *The Abilities of Man*, chapter v) as sound, it does not follow that the author is justified in the statement just quoted. In practice the sampling theory has, as Spearman points out, yielded a crude measure of a general factor. If we are interested in making a study of a separate function, such as memory, it should not be based on a mental-age scale. Neither the sampling theory nor Spearman's theory will justify the naïve statement following the one already quoted: "The quality of individual answers and the general quality of the test are quite as important as quantity in the score" (p. 76). The quantity of the score in either an age scale or a point scale is merely the cumulative index of the *quality* of the performance on individual items. Mental tests can only suffer from such an inadequate exposition as the one under discussion. Thereafter, however, case after case is presented in which the outstanding factor in the maladjustment was the mental ability of the subject, and the instrument providing the most reliable information was the mental test. In fact, one cannot read this book without feeling that most problem children would be better off if tested earlier and perhaps oftener. Introducing that psychological deep-sea goblin, the unconscious, at the beginning of chapter vii seems unnecessary. Nor are all the descriptions of attachments labeled "homosexual" convincing. While the psychiatrist will remain unconvinced, it appears that the contribution of the Freudian school frequently has to do duty where it is not required. That every admiration of an older person by a younger of the same sex must be looked on with suspicion strikes one as absurd. It would seem better to limit the term "homosexual" to those cases where "overt activity" actually occurs. It may be said, however, that for the average parent and teacher the treatment of sex in chapter iii is in the main commendable.

One must admire the common sense so evident throughout the book. Some high lights, in the reviewer's opinion, are the author's condemnation of the exaggeratedly introspective attitude of many so-called "specialists" in the field, the statement that many cures credited to the psychiatrist are natural occurrences, the discussion of the differential treatment by juvenile courts of children of the poor versus children of the rich, the consideration of the overindulgent attitude of society toward the delinquent, and the statement of the obvious but frequently overlooked fact that there is a breaking point in the stability of every

individual. Certain criticisms of the school will not be accepted by many school men, such as the statement that the secondary school makes practically no provision for meeting the needs of the boy whose intellectual limitations forbid his becoming a candidate for college entrance.

Certain problems arise in interpreting Thom's book in its broader implications. Education in this country presents an unusual spectacle. Literally millions of dollars and untold hours of time are spent for "guidance," "personnel work," "diagnostic testing and remedial teaching," and clinics of all sorts. It may be that this expenditure is justified; as yet there is no proof one way or the other. American education has been accused of being a paternalistic education. Subjective judgments are of no great value, but, if permitted, the reviewer would say that the outstanding characteristic of his college students is a lack of a feeling of responsibility for their own success and welfare. Why should they have such a sense of responsibility? From birth certificate to college diploma their history shows them surrounded by an army of crutch-bearers. Stub a toe, educationally speaking, in the kindergarten, and up rushes a teacher, or a nurse, or a school psychologist, or a clinician, or perhaps the whole group, with one or more crutches. Fall down again in the first grade, and a wheel chair is provided. No wonder that before college graduation the individual succeeds only by utilizing an entire hospital. In any form of society some of this work would, no doubt, be necessary for definitely abnormal cases, but the present maudlin tendency to turn all this machinery to the attention of the *normal* youth gives us great concern. Witness such titles as the book under review, a former one by the same author entitled *Everyday Problems of the Everyday Child*, and a book by Florence Mateer entitled *Just Normal Children*. The present book may be said to be a mixture of what might be called normal and abnormal cases. In spite of the book's title, such cases as that of Frances (pp. 97-98) need not be accepted by anyone as normal and deserve no place in a book titled as this book is. A large share of the cases, however, might be considered normal and could be duplicated by any good principal who has cared for such children without any psychiatric treatment other than plain common sense. Surely we can leave a place in our thinking for the child who is normal and who is usually happy. For the greater share of American school children at any level, a more casual treatment by both the home and the school might be very wholesome.

Let us suppose, however, that all this crutch-bearing is due to the fact that modern environment, whether home or school, is too severe for "normal youth," that large numbers are bruised and maimed and find adjustment difficult. Then shall we build more hospitals and more clinics for the maladjusted? Rather should not education seek to reconstruct the obviously faulty environment? The situation reminds one of a bit of verse which appeared years ago. It told of a community in which there was a very dangerous road running along the edge of a high, steep precipice. Many equipages and pedestrians fell over and were maimed by the fall. The community equipped an ambulance which was stationed at the foot of the precipice to hurry the unfortunates to the hospital.

Years went by, and the ambulance was very busy. A temporary visitor (who must have been a communist or a bolshevist) suggested that it would be better to build a fence along the edge of the precipice. The suggestion met with great scorn and was successfully opposed to the tune of a slogan, "Why put up a fence while the ambulance works in the valley?"

Which of the two implications most applies to the present popularity of clinical and guidance work one cannot say. Perhaps both. Whether or not American education will ever find a synthesizing philosophy capable of co-ordinating and properly balancing its activities may be doubted, but at least one may say that something of the sort is needed.

AUSTIN H. TURNEY

UNIVERSITY OF KANSAS

Hungarian education.—A comprehensive treatment of the history and present status of education in Hungary has recently appeared in the English language.¹ The historical development of Hungarian education is sketched in forty-two introductory pages, which indicate the cultural misfortunes experienced by the country—largely as a result of its geographical position—from the invasion of the Turks through the religious strife of the Reformation, the Napoleonic struggle, the gradual mellowing of a later political absolutism, and the "dismemberment" of the country after the late war. Fortunately bright spots appeared, during which culture and education made progress and laid the foundation of the present educational system. The book makes frequent reference to the *Ratio educationis* of 1777, which is considered the first royal code of Hungarian education and which embodied many principles that have gradually been put into effect as conditions have permitted.

The influence of Western Europe, particularly that of Germany, on Hungarian education can clearly be seen, especially in secondary education and in the universities and research institutes. In the sixty pages devoted to secondary education such terms as *Gymnasium*, *Realgymnasium*, and *Realschule*, referring to types of Hungarian secondary schools, indicate an obvious German influence. The West European practice of separating the sexes at the secondary level has been accepted by Hungary. The discussion of universities and research institutes, covering forty-eight pages, indicates the scope of the different faculties in the four Hungarian universities and gives brief treatment to technical and research institutes, theological seminaries, etc. A few pages are also devoted to fellowships granted for advanced study at home and abroad.

Part IV, dealing with vocational schools, describes various kinds of schools teaching agriculture, forestry and mining, industry and commerce, and professional schools of art and music. In this section a division on remedial education is included—an arrangement which does not strengthen the organization of the book.

¹ Julius Kornis, *Education in Hungary*. Studies of the International Institute of Teachers College, Columbia University, No. 13. New York: Teachers College, Columbia University, 1932. Pp. xii+290.

The nineteen pages of Part V are devoted to teacher-training, and the eighteen pages of Part VI to physical education. If the treatment of physical education had been placed with the considerations of elementary, secondary, and vocational education and the treatment of teacher-training placed with the discussion of institutions of higher education, in which much of the training is given, the organization of the material would have been improved. The material on teacher-training, as presented, describes briefly the training of teachers for schools of the different levels. The section on physical education shows the emphasis placed on sport and outdoor activity as contrasted with formal gymnastics. Sport clubs and societies are found in every school and are organized into the National Association of Secondary-School Sport Clubs. By virtue of an enactment of 1921, it is pointed out, every male citizen under twenty-one years of age is required to participate in physical education. In addition to fostering physical education, the clubs and societies are said to aid in the building of a sound national spirit and consciousness, although the reader is told that the charge that these clubs serve military purposes is false as shown by the fact that membership ceases at the age of twenty-one.

A short division on museums and archives and one on theaters are included, which suggest the place of such institutions in the educational thinking of Hungary. There is a national association of museums, which has a Library, Archives, and Museum Council as a governing body. The organization, jurisdiction, and operation of the council are concisely described.

Part IX is devoted to statistical data concerning types of schools, enrolments, distribution of the enrolments among public, private, and denominational schools, distribution of the state budget for educational purposes, etc.

From the standpoint of American readers, certain criticisms of the book might be made. The discussion of particular schools and of the curriculums of schools of different levels might have been condensed. Conversely, in a comprehensive treatment of the educational system of a country, a somewhat fuller and more direct treatment of adult education might be expected than that given in the two pages in the division dealing with public schools and the treatment given museums and theaters. Many readers would have welcomed a concise treatment of the social philosophy underlying Hungarian education and more emphasis than found in this book on educational changes which have come about since the World War. A bibliography and an index would have been assets.

In spite of the foregoing criticisms, the reviewer feels that the book makes a significant contribution to the field of education and will be of particular interest to students of comparative education. It is written in a direct style, and the numerous pictures and occasional graphs aid in giving a concrete impression of a foreign school system. In addition, the book will enable the critical reader to trace a close connection between education and the course of government.

H. H. PUNKE

UNIVERSITY OF ILLINOIS

Factors of length of service among secondary-school teachers.—The problem of supply and demand of public-school teachers has always been challenging, and even more so during the last two or three years when, without question, there has been an oversupply of persons desiring to teach. Consequently, a recent contribution¹ to the literature of this particular field is most timely. The book is a thorough and extensive study which properly deserves recognition.

The findings are similar to those of other studies with regard to the following points: transiency among high-school teachers, increased tenure from smaller to larger centers of population, greater mean service for women than for men, longest periods of service in the large centers of population which pay the highest salaries, stability unaffected by subjects and subject combinations, and causes for withdrawal.

Interesting and new data are as follows: Tenure in Pennsylvania is somewhat longer than that in other states. Junior high school teachers have a higher mean service than those of any other high-school type. Teachers who are not graduates of colleges have taught longer than those who are graduates. University graduates have a mean service several years longer than that of college graduates though normal-school graduates exceed in the less populous districts.

Who would have predicted that teachers whose parental income is \$1,000 or less a year would have the longest service or that the higher the income, the less the expectancy of long service? What are the implications in a conclusion that long tenure is associated with social factors that require certainty of employment and certainty of income? Teacher-training institutions must give serious consideration to a report indicating that they are graduating each year a much larger number of candidates than the schools can possibly absorb.

Van Houten has provided valuable information for school authorities in Pennsylvania. It is to be hoped that similar studies may be made in a number of other states and that the technique followed and factors used as bases may be similar enough to make a comparison of results possible. Only in this manner can a verification of certain phases of this study be achieved.

LEWIS W. WILLIAMS

UNIVERSITY OF ILLINOIS

The course in dramatics.—Dramatics as a school activity is rapidly leaving the class of sporadic outbursts which by the hit-and-miss method somehow produced a Senior play or a "money-raiser"—a production with haphazard training of the participants and but a temporary organization behind it. Instead, it is assuming, not only in the senior but in the junior high school, the

¹ Lyman Henry Van Houten, *Length of Service of Pennsylvania High School Teachers: The Relationship between Length of Teaching Service and Certain Economic, Social, and Educational Factors, with a Consideration of Future Needs and the Supply*. Teachers College Contributions to Education, No. 522. New York: Teachers College, Columbia University, 1932. Pp. x+148. \$1.50.

dignity of an accredited course. School productions emanating from such planned instruction not only are superior entertainment generally but have the added value of being practical illustrations of educational objectives implanted in the dramatic class. To the two classes of teachers who may be confronted with selecting a textbook for a dramatics class, namely, those who are asked to inaugurate such a course and those who wish to replace an outmoded textbook, the usual bibliographies and publishers' lists on the drama are bewildering because the titles that are strictly textbooks for class use are few. Most of the suggested books are valuable, but, when it comes to selecting a textbook, the teacher will find his problem narrowing. He will demand of his final choice (1) that it be easily comprehensible to his pupils; (2) that it be planned for class work; (3) that it reflect a rich background; and (4) that it be motivated by worthy objectives, although not pedantically isolating dramatics as a "school subject."

In the volume under review¹ the senior high school dramatics teacher will find a textbook which he may place in the hands of his pupils confident that it fulfills his demands. The book is the fruit of the author's work on a course of study in dramatics for the Denver high schools. Although it is expected to furnish a year's study, it may by selection be used for a semester. The book is in five divisions. The first four deal with, respectively, the appreciation, interpretation, production, and writing of the drama, and the fifth is entitled "Living the Drama with Shakespeare." In the first three divisions a great deal of concrete but not barren instruction in the history and criticism of the stage and in the technique of acting and producing is included in chapters plentifully sprinkled with excerpts from old and new plays and articles and with suggestive, practical questions and exercises. Part IV endeavors to better the pupil's appreciation by encouraging him to write short plays and furnishes original means to that end. An unusual feature is the entire division devoted to Shakespeare. The author feels that no one who lacks an intimate acquaintance with the great poet and dramatist has a true appreciation of the drama.

The foregoing survey of the book indicates that it fulfills the teacher's second and third requirements and the second part of the fourth. Concerning the first half of the fourth, the author states in the Introduction that the purposes of her book are to inspire creative activity in the pupils and to further their individual and cultural development—purposes which the content and the method of the book give good promise of consummating. The book's fulfillment of the first requirement, easy comprehensibility for the pupil, might be questioned; at times the language is a little beyond the average high-school pupil, the author seeming to forget that it is the high-school pupil who is directly addressed.

An excellent series of appendixes almost doubles the book's value. These include a list of selected plays for high schools, intelligent bibliographies, a plan for

¹ Katharine Anne Omannay, *The Stage and the School*. New York: Harper & Bros., 1932. Pp. xvi+450. \$1.48.

organizing dramatic clubs, a discussion of pageantry, and advice to young persons who covet professional careers.

LOUIS TRAVERS

WASHINGTON JUNIOR HIGH SCHOOL
DULUTH, MINNESOTA

Two textbooks in world history.—One of the most serious flaws in our ordinary outlook on affairs is lack of time sense or perspective, which alone can give more than superficial meaning to current happenings. The world-history course in senior high schools is designed primarily to present the general background of our culture, and two recent textbooks^a for the course, intelligently used, may go far toward helping it fulfil its function. Both books cover the story of mankind from the era of primitive people to the present decade. They are intended to serve the same underlying purpose in social education, yet they are strikingly and significantly different.

The volume by Hayes, Moon, and Wayland is well organized in a series of twelve major parts, as follows: "Beginnings of Civilization," "Classical Civilization in the Greek City-States," "Classical Civilization in the Roman Empire," "The Classical Age in Farther Asia," "The Transition from Classical to Christian Civilization," "Christian Civilization in Medieval Europe," "The Expansion of Europe," "Upheaval in State and Church in Europe," "Revolutionary Foundations of Present-Day Civilization," "Nationalism and Democracy," "The White Man's Burden," and "Modern Civilization on Trial." The volume by Pahlow, slightly smaller, is arranged in six major divisions, titled distinctively as follows: "A Few Observations on History and Its Relation to You"; "What Happened in the Near East, Chiefly from the Building of the Great Pyramid to the Battle of Marathon"; "What Happened in the Millennium of Greece and Palestine from about the Time of Homer and David to the Time of Jesus"; "What Happened in the Roman Millennium from the Expulsion of the Kings to the 'Fall' of the Roman Empire"; "The Medieval Millennium in Which We Get Close to Family History and See How Our Ancestors Make Many New Starts"; "The Modern Half-Millennium, to Which We (Modestly) Devote as Much Space as We Did to the Preceding Four and a Half Millenniums."

The first of the two books obviously contains considerably more strictly historical information than does the second; the book is to be commended particularly for the inclusion of considerable material on Oriental history in its pages and for the deft way in which it weaves the story of the United States into the general story of social evolution. The second book, on the other hand,

^a a) Carlton J. H. Hayes, Parker Thomas Moon, and John W. Wayland, *World History*. New York: Macmillan Co., 1932. Pp. xviii+912. \$2.20.

b) Edwin W. Pahlow, *Man's Great Adventure: An Introduction to World History*, pp. xiv+854+xxiv, \$2.12; *Directed Studies in World History To Accompany "Man's Great Adventure,"* pp. iv+106. Boston: Ginn & Co., 1932.

contains much material on the meaning of history and on the nature of the "historical method" usually omitted from high-school history courses—to the ill fortune of the courses and the pupils in them. The books differ, too, in their apportionment of space among the different periods of history. Where world-history is taught, it is customary to give a relatively brief account of primitive, classical, and medieval cultures and to emphasize modern events and times. Hayes, Moon, and Wayland in their volume follow the custom, giving approximately two-fifths of the space to the period since 1775. Six of the book's forty-nine chapters deal with events since 1914. On the other hand, Pahlow gives relatively more attention to the earlier periods, reserving only a little more than two-sevenths of the space for events during and since the French Revolution. In defense of his departure from the usual, the author writes, "The Hebrew prophets, the Greek philosophers, and the Roman jurists offer to our young people as many ideas to think with on life today as do any groups of men who happened to be born after Watt discovered that the kettle boiled" (p. vii).

Perhaps the significant difference between the two books, and the reason for their dissimilar apportionments of space to different periods, is their lack of agreement as to what history is. In the book by Hayes, Moon, and Wayland history is a narrative of development, broad in scope, well told, and with all its parts closely interrelated. Generally speaking, however, the reader is left to draw the moral of the tale for himself. History narrates, but remains opinionless, refusing to comment, except rarely, on the values in its own story. This treatment is, of course, the traditional scholarly manner. Pahlow, on the other hand, writes essentially what is his own philosophy of history. He interprets, comments, perhaps preaches on occasion, and constantly applies ideas of the past to the present and the future. In the Preface he acknowledges debt to "the new school of publicist-historians who have moved on from the *wie-es-eigentlich gewesen* school of Ranke to the 'ancient' Thucydidean goal of making history yield meanings and illumine the problems which now so sorely perplex mankind" (p. vii). The book is distinctly out of the ordinary in that it deals less with the materials of history than it does with the spirit of history. Pahlow does not fear to indoctrinate; he is not propagandizing in a narrow and invidious sense, but he certainly takes his scholarship into the market place of current affairs and suggests its application there.

Both books are written in pleasant, flowing style, which in the volume by Pahlow becomes even breezy on occasion, as when he writes a section on "Men, Geese, and Donkeys." The vocabularies are well adapted to high-school use, especially in the volume by Hayes, Moon, and Wayland. The philosophical approach of Pahlow's book sometimes leads to unfortunate generalizing. For example, his account of primitive times is generalized to the point where it seems to lack definiteness; the treatment given by Hayes, Moon, and Wayland to the same topics presents a wealth of recently-revealed concrete material but perhaps fails to tell the pupil quite so forcibly the meaning of primitive times.

The books represent the best developments of the art of textbook-making.

Attractively bound, beautifully illustrated, they are as suitable for a private library as for a schoolroom. The volume by Pahlow particularly makes use of a wealth of diagrams and charts. Both books have liberal allotments of maps.

Each of the books represents a distinct contribution to teaching material for the course in world-history. Which of the two is more suitable for a given school will depend on the type of course which is desired. Yet, after all, the two books are more complementary than antagonistic. Fortunate will be the class which has access to both the integrated narrative of the one and the philosophical interpretation of the other.

HOWARD E. WILSON

HARVARD UNIVERSITY

Adventuring in French reading.—The influence and value of the Modern Foreign Language Study of a few years ago are nowhere seen to better advantage than in the appearance of new and better reading materials in foreign languages. One notable experiment has set definite vocabulary limits for a correlated series of books, using as a guide for difficulty the *Vander Beke French Word Book*. Sometimes older books are simplified in order not to force on the beginner too steep a vocabulary gradient. Almost without exception new books strive to include more and better content of the *Kultatkunde* type.

The objection has been raised to rewritten material that part of the gain made in a concentrated and simple vocabulary is lost in the lessening of what is called "real French flavor." A book¹ by a master teacher of French, assisted by an unusual galaxy of French and American collaborators, is a highly successful attempt to solve the problem so far as second-year reading is concerned. The author assumes that the first 3,069 words of the *French Word Book* should constitute the irreducible minimum of basic words to be mastered by the end of the second year's work. Of these, the reviewer finds between 85 and 90 per cent listed in the general vocabulary. As a matter of fact, there are more, since certain cognates found in the book are not listed. The distinctive marking of this basic vocabulary is only one of many excellent teaching helps. Others are the explanations at the bottom of the page on which they occur of more difficult words and idioms beyond the three-thousand group, a "Table of Recognition Helps" for training in word-building, the presence in the vocabulary of French synonyms and antonyms, verb and numeral tables, and well-graded exercises designed to give training toward either written or oral facility.

Comparison of the general vocabulary with the *French Word Book* shows that 25 per cent of the words fall in the 1,069 most often found in French reading material, 23 per cent in the second thousand, and 23 per cent in the third. Only 9 per cent are not found in the *French Word Book*, many of which are explained in footnotes as they occur. The emphasis on words with a range in the *French Word Book* of 2,000-3,000 is the greatest of the dozen or fifteen textbooks which

¹ Arthur Gibbon Bovée, *Aventures par la lecture: Contes, comédies, et civilisation française*. New York: Harcourt, Brace & Co., 1932. Pp. xviii+494. \$1.72.

the reviewer has analyzed in this manner, an admirable quality in a second-year book.

The content is well varied. Anthologies, while often used with advanced pupils, are a comparative rarity on the elementary level, but here is found material dealing with many aspects of French life, together with stories by such authors as Maurois, Claretie, Theuriet, Daudet, Sardou, and Anatole France, and even three longer selections, the old favorites *L'Abbé Constantin*, *Perrichon*, and *L'Eté de la Saint-Martin*, usually printed as separate books. Songs, maps, and selections dealing with French history, geography, government, customs, and colonies—all previously tried out in the author's classes at the University of Chicago High School—complete the four hundred pages of actual reading matter. So much excellent material within the covers of one book at a reasonable price is an added recommendation in these times of economic stress. Yet, because of the number and excellence of the illustrations, the volume presents a fine appearance with no impression of overcrowding.

In every way this newcomer is to be recommended. No typographical or other errors were noted. It furnishes the pupil with an unusual opportunity to correlate his French with other subjects and to acquire that rich background essential as a foundation for later work, and it is calculated to instil in him the desire for further adventuring along the pleasant byways of French literature.

ROBERT D. COLE

UNIVERSITY OF NORTH DAKOTA

A usable textbook in elementary business training.—In the early textbooks for junior business training the major objective was occupational training for the kinds of positions junior workers might obtain if they had to leave school. Because the number of pupils who drop out seems to be decreasing in all but the large towns and because the jobs available for such pupils are simple and require only a minimum of training, the emphasis in later textbooks has changed to attempts to supply guidance and personal business information needed by everyone.

The last half of the book under review¹ is still devoted to occupational training along the old lines now being abandoned by modern writers. This section includes some desirable personal business information as well as specific job information, but it might have been better to separate the material into two parts, one giving general business information and guidance justifiable for all pupils and the other giving specific job training for those pupils who are definitely known to be planning to drop out of school. The first half covers in a satisfactory manner the guidance and personal information commonly included in such textbooks.

Some of the sections are especially good, particularly those treating the need

¹ C. W. Hamilton and J. F. Gallagher, *First Lessons in Business Training*. New York: Prentice-Hall, Inc., 1932. Pp. xvi+432. \$1.60.

for the development of traits of character and business etiquette, a growing movement in business education. At the ends of chapters the authors have included abundant questions and topics for investigation, conceived and phrased in a manner that indicates ability to appreciate the kinds of things in which junior high school pupils are interested now rather than the kinds of things in which they may be interested some day in the future if they should go into business.

The section on travel and transportation includes some attention-getting pictures of Pullman cars, aeroplanes, ocean liners, and busses which should appeal to pupils.

The volume is accompanied by a set of forms but apparently does not include a teacher's manual, workbooks for pupils, or test service, as do certain other textbooks. Emphasis on penmanship is predominant and is apparently a hold-over from the old unsound idea that the commercial teacher can and should remedy the deficiencies of previous teachers of writing, arithmetic, spelling, and English.

To the reviewer this book seems to be good—not quite in the first class, perhaps—but decidedly better than the average.

E. G. BLACKSTONE

UNIVERSITY OF IOWA

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY AND PRACTICE

BEATLEY, BANCROFT. *Achievement in the Junior High School*. Harvard Studies in Education, Vol. XVIII. Cambridge, Massachusetts: Harvard University Press, 1932. Pp. xiv+92. \$2.00.

BOWLES, ROSWELL PAGE. *The Operation and Effects of a Single Salary Schedule*. Teachers College Contributions to Education, No. 518. New York: Teachers College, Columbia University, 1932. Pp. viii+140. \$1.50.

CAREY, ALICE E., HANNA, PAUL R., and MERIAM, J. L. *Catalog: Units of Work, Activities, Projects, Etc., to 1932*. Lincoln School Research Studies. New York: Lincoln School of Teachers College, Columbia University, 1932. Pp. xii+290.

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